

\*\*\*\*\*AUTO\*\*3-DIGIT 857  
 S117298 D08 0610  
 TOM MILLER 209  
 ASST CHIEF ENGINEER  
 KTZR  
 2033 S AUGUSTA PL  
 TUCSON AZ 85710 7905

**IBOC Next-Gen**  
 Low-cost chips, 'HD Now'  
 and a push to smaller markets.

Page 24

**Upbeat Tech**  
 Contract engineers like Mac  
 McGaha are busier than ever.

Page 20



# Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

June 6, 2007

## WTGB Is 'Green' Pioneer For CBS

*Washington Station Hopes to Catch on With Eco-Friendly Format*

by Randy J. Stine

**SILVER SPRING, Md.** CBS Radio is looking to put a cap on its carbon output in the nation's capital by launching a radio station that is environmentally friendly both on and off the air.

It will use renewable energy to supply its 50,000 watt signal and has an overhauled on-air sound branded as "Go Green With the Globe."



If the effort is successful, some of the other 143 CBS Radio stations might go green, those involved say.

The station, 94.7(FM) The Globe, eventually will use only hybrid station vehicles and promote eco-friendly events.

It plays music like the Dave Matthews Band and Red Hot Chili Peppers, but CBS Radio managers say what happens between the songs and behind the scenes is just as important. The nation's increased concern about the environment is leading the broadcaster to do right by it, managers say; and hopefully they can capitalize on the movement with potentially higher ratings as well.

"This is a chance to do something that  
 See GREEN, page 8 ▶



**D816HD - Simply More Power (20kW to 60kW) Analog+HD**  
 Only From... *Continental Electronics*  
 www.contelec.com (800)733-5011

**RW CoolCast:**  
 Watch video booth  
 demos of winning  
 products at  
[radioworld.com](http://radioworld.com)

◆ NEWSWATCH ◆

### Streaming Deadline Postponed

**WASHINGTON** The Copyright Royalty Board delayed a deadline for online stations to make music royalty payments under new rates. The deadline is now July 15.

NPR and the Intercollegiate Broadcasting System are among those that have filed appeals. SaveNetRadio welcomed the delay and lobbied lawmakers about what it calls the "devastating" new rates. The organization of artists, labels, listeners and Webcasters led a rally here in May to dis-

cuss a bill they say would vacate the rates and give Internet radio a royalty rate similar to those of satellite and cable radio.

Reps. Jay Inslee, D-Wash. and Don Manzullo, R-Ill. filed the legislation to vacate the royalty decision. The hike amounts to a 300 percent cost increase for the largest Webcasters and up to a 1,200 percent increase for smaller operations, bill proponents said.

"There has to be a business model that allows creative Webcasters to thrive and the existing rule removes all the oxygen from this space," Inslee said.

Sens. Ron Wyden, D-Ore., and Sam Brownback, R-Kan., introduced a companion bill in the Senate.

NAB stated that it was reviewing details of the bill but called CRB's rate hike disappointing. NPR supports the bill, saying, "Since 1976, (Congress) has recognized that public radio has a very different mission from commercial media and cannot pay commercial-level royalty rates."

SoundExchange said proponents of the bill paint a distorted picture and that Internet radio is not going to "die" under the new rates. The organization, which collects digital audio royalties for artists and sound recording copyright owners, said the Webcasting music business is "dominated by 10 large, highly-profitable companies."

Under the bill, "large commercial serv-

ices like Clear Channel and Microsoft would experience a windfall in excess of \$10 million a year that otherwise would be paid to artists and labels."

### DRM Eyes India For MW Test

**GENEVA** The Digital Radio Mondiale Consortium, All India Radio and the Asia-Pacific Broadcasting Union hoped to showcase DRM digital radio transmissions in the medium-wave band using single-channel simulcast and multi-channel simulcast technologies.

Proponents hope to demonstrate the feasibility of the SCS and MSC technology, while broadcasting analog and digital radio signals using only one transmitter, they said. A May trial was targeted to medium-wave broadcasters, transmitter manufacturers, receiver makers and retailers.

### News Roundup

**HARRIS** said broadcast revenue was down about 2.8 percent in its third quarter compared to the same period a year before. Revenue was \$139 million.

**SAMSUNG** plans to introduce a low-power, high-performance chip for HD Radio receivers designed to support advanced features for HD Radio with applications in mobile phones, portable media players, portable navigation devices, table radios and home audio-video components. Production quantities are expected in early 2008.

See NEWSWATCH, page 6 ▶



THE TOOLS HAVE CHANGED...

### BUT THE *MISSION* REMAINS THE SAME

Today's audio control surface has evolved to a very high degree. Yesterday's wish list is today's feature set: total router integration, routable audio and logic, total show recall, and a complete set of DSP audio processing are under the hood of this G7...

All in a package of stainless steel and aluminum designed for years of 24/7 service, with a familiar look and feel that will *help your talent make years of great radio.*

Networked audio requires a higher level of expertise, experience and resources. Benefit from all three with *WHEATSTONE!*

WE MAKE THE GOOD STUFF



Copyright © 2007 by Wheatstone Corporation

tel 252-638-7000 | www.wheatstone.com | sales@wheatstone.com

### Index

NEWS	
WTGB Is 'Green' Pioneer for CBS	1
NewsWatch	2
Web Content Models Need Context	3
Give Sat Translators to Stations	4
Tune In to RW's CoolCast Online	4
Think Before You Send a Fax	5
FEATURES	
Workbench: Fight Back Against Copper Theft	12
Is It Lights Out for Webcasters?	16
An Online Network for Student Stations	18
Contract Engineers Upbeat About Business	20
HD RADIO NEWS	
Next-Gen Features on the Horizon	24
HD-R AM Radio in California	25
DMHD-1000 Is an 'Add-On' Tuner	30
STUDIO SESSIONS	
StationPlaylist Marries Studio, Creator	34
'Flash Is Best' for Newsgathering	37
BUYER'S GUIDE	
Apex 230: Big Sound for Podcasting	40
Apex Broadcasting Points to Vorsis AP3	42
Cleveland Cluster Pumps With Omnia	44
OPINION	
Reader's Forum	53-54
Parity Check	54

# Web Content Models Need Context

by Tony Ware

Business success on the Web is dependent on mastering not just content but context, according to Shen Tong, founder and president of VFinity, a Web-native workflow management technology.

Achieving success on Web 2.0 is mandatory to avoid becoming obsolete, Tong said during an NAB session, "Social Networking in the 21st Century."

note, offering a context-centric strategy with highly flexible metadata. Customers will dictate valuable content.

"Gatekeepers are dead," Tong said, stressing people as an integration point of creativity, community and software. "It's not about how you can protect content, it's about how easy you can get content to the context aggregate system."

After Tong demonstrated VFinity's means of creating "dynamic circles,"



Shen Tong

**Gatekeepers are dead. It's not about how you can protect content, it's about how easy you can get content to the context aggregate system.**

— Shen Tong

"When I was running the news center for the student center in Beijing, reporters said my revolution would be televised, and it made the difference," said Tong, who was a student activist during China's Tiananmen Square movement and whose book on the subject, "Almost a Revolution," is still required reading.

Peggy Miles, session moderator and president and founder of Intervox Communications in Alexandria, Va., introduced the panelists. They included David Bankston, executive vice president and chief technology officer of Neighborhood America; Cynthia Francis, chief executive officer of Reality Digital;

People now have a digital life that travels conveniently with them, and allows for instantaneous feedback for strengthening all capabilities. Building affinity almost more than brands, locking in on a community of interest and the "mash-up" of applications and widgets on Web sites were bantered back and forth as the evolution of long-term collaboration.

"The power of social networking is available to everyone; it is not a threat," Tong said. "Like in 'Jurassic Park,' life finds a way. Now content finds a way."

*This story was prepared for the NAB Daily News and is ©NAB.*



**Lowest Prices and Largest Inventory on EVERYTHING For Broadcast**  
**BSWusa.com 800-426-8434**

## Managed Web

"Now, the next revolution will be social networking," Tong said. "I want to thank NAB for organizing this panel, because it is the most challenging and important question for media business. It refers to massive growing interactivity."

Tong then introduced his concept of the managed Web. Tong proposed that everything — from the Amazon model of users reviewing products and users rating reviews to actual internal production — will become a network of harnessing context tools and tags.

Tong notes that content is no longer limited by access to the airwaves or shelf space. Everyone has access to everything, and the Web is taking the place of libraries and archives, traditional broadcasting and means of distribution, he believes.

Now the key is in the filters, he said. Customers desire a self-service, self-correcting mechanism more than a dictated product. Manufacturers need to take

Michael Gordon, co-founder and chief strategy officer of Limelight Networks; Suzanne Stefanac, director of the American Film Institute's Digital Content Lab; and Rex Wong, chief executive officer of Dave.TV.

Miles projected the cell phone-captured CNN.com video of the Virginia Tech shooting.

"News, user-generated, is no longer in the future," Miles said. "Right now it's cached video, but the next generation will be live, mobile Webcasting on the phone."

As she spoke, someone circled the room with a cell phone, and its images were projected with a minor delay through ComVu, which enables live video broadcasts from cell phones.

## Building a community

The panel discussed how the television networks are realizing the value of reaching out to and building the community of potential content providers in the general public.

But with the concept of the medium being available to all came the issues of minimizing risks from legal issues such as libel and copyright infringement. This brought up the importance of filters on both the back and front end.

## NEWS WATCH

**AUTOMAKERS:** A technology manager at Chrysler told Reuters, "We're investigating HD Radio and we'll probably make a decision in six months. When you add up the cost, it's a lot of money." Reuters reports installing HD-R "would cost the struggling Big Three U.S. automakers as much as an estimated \$600 million annually to install." GM, Ford and Chrysler have not committed; HD Digital Radio Alliance President/CEO Peter Ferrara was quoted saying the Big Three have "made a conscious decision to wait and see."

**SIRIUS** said its quarterly loss narrowed and it had increased revenue from new customers. It reported a net loss of \$144.7 million, compared to a loss of \$458.5 million a year ago. Revenue increased 61 percent to \$204 million.

**WXPN (FM)** launched its HD2 channel with an indie rock format, "Y-Rock On XPN." The Philadelphia station says it's the only station in the market airing the format.

28,642 products in stock at press time!

## SUMMER SALE

Orban Optimod-FM 8300

Now Any Station Can Afford An Optimod-FM Processor

- Get the mid-priced unit with high-end processor features – at special BSW savings!!
- 5-band processing is ideal for any radio format
- Easy "Less/More" adjustment offers simple tweaking of your sound
- AES/EBU input/output, ready to feed HD Radio transmitters

8300 List \$7,595.00 **orban**

Call BSW For Lowest Price: 800-426-8434

## Symetrix 528E Broadcast Voice Processor

- Six major functions in a single rack unit
- Enhances vocal intelligibility and increases perceived loudness
- Mic preamp, de-esser, compression/limiting
- Balanced XLR mic and line level inputs

528E List \$599.00

**Lowest Price only \$499!**

## Telos Zephyr Xstream: Most Trusted ISDN Codec



- Transmit and receive 20 kHz stereo audio to and from a single location over a single ISDN line
- G.722, G.711 and MPEG Layer-II and Layer-III
- MPEG 4 AAC and MPEG 4 AAC-LD coding
- 100-Base-T Ethernet port for control and streaming of AAC or MP3-coded audio
- Always the lowest price at BSW!!

XSTREAM Studio ISDN studio codec, rackmount List \$4,710.00  
 XSTREAMMXP Portable ISDN portable codec w/ mixer List \$5,249.00

Call BSW For Lowest Price: 800-426-8434



## Burk Watchband AM/FM/RDS Receiver

- Engineers, managers and program directors
- Playlist reports with Radio Text lets program directors compare their rotations to competitors
- Audio metrics and field intensity measurements provide valuable analysis tools

WATCHBAND List \$1,495.00

Call BSW For Lowest Price: 800-426-8434



## Same Day Shipping

BSW stocks a huge warehouse of products. Stock items shipped the same day. Just order by 7:00 PM Eastern Time.

**Free Shipping on Most Web orders over \$189**  
 FREE ground service delivery to the contiguous 48 states. Excludes heavy or oversized items.



Visit radioworld.com for CoolCast video demos of all the 2007 "Cool Stuff" Award-winning products.

# Give Sat Translators to Stations

Our friend and contributor Jim Withers read my recent comments about the Sirius/XM merger including my "proposal" to reignite WLW's 500 kW blowtorch.

"Even though that idea gives me a warm glow," Jim e-mailed, "I think Mexico might have a couple of things to say about a modern day 'Border Blaster,' so I have an alternate plan:

"I would propose, as a condition of merger approval, that the combined Sirius/XM entity set aside up to 50 or 60 of their 'gap-filler' translator channels in each Arbitron rated market for use by local broadcasters. Every station that could demonstrate 'significant market presence,' measured by some combination of signal and ratings, would get access to its own translator channel in its local market.

"Sirius/XM would apply for power increases for the relinquished translator channels so the coverage for local stations would roughly equal the average market coverage of all of the stations. Simultaneously, Sirius/XM would go dark on the 50 to 60 satellite channels that were co-channel with the translators."

Jim thinks his plan has several advantages for broadcasters and does not significantly affect the business model of a combined satellite broadcaster.

"First, it levels the playing field by allowing local broadcasters access to satellite radio subscribers," he wrote. "As TV stations found out when cable began siphoning off viewers in the 1980s, once local stations got guaranteed access to cable homes through 'Must Carry,' viewers remained loyal to their local market stations. (In fact, the majority of viewing in cable homes still goes to local TV stations and affiliates of the five broadcast networks.)

"Second, it removes the monopolistic nature of a merged satellite company. With guaranteed carriage of all local broadcast signals, each in its own market, competition will dictate ratings and rates. Although it would still be true that the merged entity might ultimately try to charge higher subscriber fees, over-the-air radio would remain an economically viable free alternative, with full access to

satellite subscribers, and that fact would help keep rates low.

"Third, it does not impact the true advantage of satellite radio, that of a national service, well suited to over-the-road listening and national event programming.

"Fourth, AM radio in particular would benefit from a huge technological improvement in quality," Jim continued. "I figure most stations would simply transport a studio-grade signal directly to the translator headend via IP/DSL or microwave. Full 20 kHz surround sound for everybody!

"Fifth, it takes our industry out of the protectionist mode. Radio works best as a local medium. We all know that and this is our chance to prove that we're not afraid of legitimate competition."

He invites feedback on this idea via the pages of RW. Write to me at [radio.world@imaspub.com](mailto:radio.world@imaspub.com).

Jim Withers is that rare radio owner with a passion for engineering — or is it "rare engineer with a passion for ownership"? Be sure to read his recent three-part series for prospective new station owners at [radioworld.com](http://radioworld.com).

## From the Editor



**Paul J. McLane**

## Tune In to RW's CoolCast Online

What did you think was cool at NAB? Tell me at [radioworld@imaspub.com](mailto:radioworld@imaspub.com).

Our judges weigh in with their picks throughout this issue. And we've added something new this year: CoolCast Videos give you a first-hand look at this year's "Cool Stuff" winners.



Peter Burk explains the Burk AFD-1 for the RW camera. You can learn about this year's 'Cool Stuff' winners via video on the RW Web site.

A great deal of sweat and imagination goes into creating any new product. What makes for an award winner? What do these products offer for radio station users? Hear about it from the source with personal demos from the manufacturers and product gurus who brought their exciting technology to market at the NAB convention.

Visit [radioworld.com](http://radioworld.com), click on the "Cool Stuff" logo and choose a thumbnail screenshot to see RW's "on the floor" CoolCast video demo for each product.

For a discussion about how awards are picked, see the 2006 story "A Cool Stuff Judge Talks" at [radioworld.com/coolfaq](http://radioworld.com/coolfaq).



### The Winners

Broadcast Bionics PhoneBOX Solo  
Broadcast Electronics TRE Revenue Center  
Broadcast Tools ProMix 12 Console  
Burk AFD-1 Arc and Flame Detector  
Burk Watchband Remote AM/FM/RDS Receiver  
Comrex ACCESS Portable  
DaySequerra Model M3 HD Radio Precision Multi-Monitor  
Digital Radio Express Aruba FMExtra Receiver  
Global Security Systems Alert FM USB  
Henry Engineering USB-AES Matchbox  
JK Audio Daptor Three Wireless Audio Interface  
Kowa PX10 Flash Memory Audio Player  
Nautel Nautel Reliable HD Transport Suite  
NewTek TriCaster Studio w/Pizazz Productions' AutoSwitch  
Omnia Audio Omnia ONE Multicast Processor  
Roland RSS S-1608 Digital Snake System  
Sierra Automated Systems Dees Digital Rubicon-SL Retro  
Telos Zephyr/IP  
TowerSwitch Talking Alert-Mini  
VSoft Communications AM-Pro 2 Software  
Yellow Jacket WASP AMS Ramps

"Cool Concept":  
Inovonics BandScanner, Model 512  
NDS RadioGuard

## "We needed a reliable remote control and monitoring system."



### ARCPlus

## Equity Broadcasting Begins Nationwide ARC Plus Rollout

"Equity Broadcasting has stations nationwide and we needed a reliable, flexible and affordable remote control and monitoring system. We have found that with the Burk ARC Plus.

The system is easy to install, easy to configure and easy to maintain and monitor. Plus, Burk's customer service and support have been fantastic."

**Ben Allen**  
Equity Broadcasting Corporation

Ready to learn more about the industry's most powerful remote control?  
Visit [www.burk.com/ExperienceThePlus](http://www.burk.com/ExperienceThePlus).

**BURK**  
TECHNOLOGY

GUEST COMMENTARY

# Think Before You Send a Fax

*Unsolicited, Unwanted, Advertising Faxes Are 'Junk'*

by Henry A. Solomon

Have you ever been on the receiving end of a fax solicitation you didn't want and felt like your privacy was being invaded? Have you ever sent to a stranger a fax advertising your business or organization? The answer to both questions is probably yes.

In each of these cases the sender transmitted and the recipient received a so-called "junk fax," for which you are open to private causes of action, which could result in statutory damages of up to \$1,500 per fax. Junk faxes also may be subject to monetary forfeitures or citations by the FCC.

Junk faxes are unsolicited advertisements transmitted over a telephone facsimile machine, a computer or other device, to a business or residential fax machine. In the usual case the fax spammer and the advertiser are one in the same.

The 1991 Telephone Consumer Protection Act made unsolicited advertis-

ing faxes illegal unless the sender first obtained the recipient's explicit consent. Congress recently amended the TCPA's unsolicited advertisement provisions by enacting the Junk Fax Protection Act. In August 2006, the FCC amended its rules to track the JPFA's provisions.

**Junk faxes, anyone?**

The FCC has tried to discourage junk faxes, but it has failed to analyze junk fax data, or do a good job articulating long-term or annual goals for junk fax monitoring, enforcement and consumer education. The General Accounting Office so concluded in its April 2006 report to Congress titled "Weakness in Procedures and Performance Management Hinder Junk Fax Enforcement."

The FCC has the power to levy monetary forfeitures of up to \$1,500 for each illegal advertising fax. Though the FCC's Enforcement Bureau has issued numerous citations (i.e., written warnings) against junk faxes, the agency has



Photo © James Steill / iStock.com

found it extremely difficult to collect the fines or count on the Department of Justice to bring collection actions in federal courts, as opposed to sending threatening letters.

The GAO's report notes that between 2000 and 2005, junk fax enforcement actions at the commission remained the same, and that out of 46,000 complaints recorded in 2005, very few of them resulted in fines. GAO statistics also revealed that between 2000 and 2005, the FCC issued only six forfeitures.

The report does not mention one important fact: The vast majority of fax spammers do not hold broadcast licenses and are not otherwise regulated by the FCC. Consequently, the FCC can't pressure spam scofflaws to pay up or risk having their license applications or requests "frozen" under the commission's "Red Light" policy. In addition, the FCC lacks the authority to impose penalties or charge interest for late payment or non-payment of monetary forfeitures.

Surprisingly, during the five-year period beginning in 2000, the FCC's Enforcement Bureau issued only approximately 260 citations against junk faxes. Moreover, the GAO found that enforcement efforts at the FCC have been hindered by management deficiencies, and the rising sophistication of junk faxes in hiding their identities.

Now that the JPFA is law and the FCC has a final set of rules covering junk faxes, the shortcomings identified by the GAO

are likely to be addressed by the bureau.

Junk faxes are illegal regardless of the time of day (or night) they are transmitted. They do not fall within the "safe harbor" exemption relating to telephone solicitations of parties who are not on the nationwide do-not-call list.

Moreover, unsolicited ad faxes that are sent to strangers are illegal even if the recipient does not own a fax machine. They are particularly annoying because calls ringing to telephone lines that are not connected to fax machines tend to make a high-pitched computer noise.

**'Opt-out' notice essential**

However, not all unsolicited advertising faxes are illegal. The JPFA and the FCC's rules now recognize that unsolicited faxes may be permissible where sender recipient have an Established Business Relationship (EBR). For there to be an EBR, a recipient and the business or organization sending the fax must regularly transact business.

Additionally, the recipient's fax number must have been voluntarily disclosed to the sender. The law also requires each fax, not simply the cover sheet, to contain a plain English "opt-out" notice. The notice must set forth a toll-free telephone number, Internet address or other no-cost means by which the recipient can call a halt to further faxes.

What about senders of unsolicited mass faxes to strangers? Most ad faxes

See JUNK, page 6 ▶

**COOL STUFF 2007 AWARD WINNER**





Photo by Jim Peck

**Product:** TRE Revenue Center  
**Company:** Broadcast Electronics

TRE Revenue Center is a module for BE's TRE Message Manager to track Messagecasting advertisers, campaigns and messages. It includes management tools for selling on-air support text such as advertiser phone number, coupon code or Web site address.

"The tool can also be used with any over-the-air flight of message impressions not associated with audio content," BE states. TRE Revenue Center offers printable reports on revenue-generating messages for billing purposes, including details on when each message aired, graphs showing daypart distribution and additional statistics.

Jim Roberts of BE is shown.

**Shipping:** Q3  
**Price:** A no-charge add-on to TRE Message Manager, which starts at \$1,100  
**Design:** The Radio Experience development teams in Quincy, Ill., and Seattle  
**Contact:** (217) 224-9600, e-mail [bdcast@bdcast.com](mailto:bdcast@bdcast.com) or visit [www.bdcast.com](http://www.bdcast.com)



Every now and then it's a good idea to step back and question everything. Where are we going? What are we doing right? What are we doing wrong? How can we best serve our customers?

We're truly grateful for our many customers that have been coming back to Bradley, year after year. They tell us they like the personal service they get... they like not being stuck in voice mail at one of the broadcast mega-dealers. They like talking with an audio professional who really understands the challenges they're facing and is there to provide help and support.

Recently, we were surprised to hear that a couple of our former customers thought that Bradley had gone out of business.... mostly because they hadn't seen any Bradley advertising for years. OK... this is something we can fix - today! Since 1983, Bradley Broadcast and Pro Audio has been providing the friendly personal service of a small company... backed by the technical expertise of a staff with many years in the business. The next time you have a project coming up, we'd surely appreciate the opportunity to be of service to you.



1-800-732-7665

[www.bradleybroadcast.com](http://www.bradleybroadcast.com)

# Junk

► Continued from page 5

sent by so-called “fax broadcasters” are illegal and the fax broadcaster may be subjected to statutory damage lawsuits and/or, as noted, FCC citations. Many fax broadcasters use auto dialers and are known as “war dialers.” They employ computer programs that can target and bombard thousands if not hundreds of thousands of fax machines simultaneously. Unfortunately, it’s often difficult to contact the advertiser or the fax marketer and demand that the faxes cease.

Unsolicited advertising faxes may be lawful even if the EBR and explicit consent exemptions aren’t present. For example a business may have implicitly con-

sented to receive unsolicited faxes if it provides its facsimile number in a directory or advertisement or displays it on its Web site. Conversely, where a recipient’s fax number appears in a directory or any other source of information that has been compiled by *third parties* (such as an alumni newsletter or trade publication), the sender must take reasonable steps to verify that the recipient consented to have its fax number made available to the public at large, *and* had no objection to receiving fax solicitations.

Curbing unsolicited advertising faxes is not an easy job. Private litigation is costly and time consuming, and judgments or settlement amounts are often uncollectible.

Likewise, the FCC’s enforcement actions leave much to be desired. However, nature abhors a vacuum.

The vacuum is now being filled by companies that aid individuals and businesses that want to combat fax spammers. Typically, these bounty hunters advertise their services on the Internet and usually charge clients a fee, generally \$100, for each monetary settlement they’re able to exact.

## States enacting laws

Speaking of enablers, tort lawyers have discovered that junk fax lawsuits — class actions in particular — can generate multimillion-dollar verdicts. These junk fax “specialists” often negotiate handsome monetary settlements simply by sending out demand letters and, in some cases, including a draft of a court complaint.

Although the FCC has cited or fined junk faxes, some state and federal courts

have taken a more proactive role in curbing this problem. For example, the granddaddy of all junk faxes was California-based Fax.com.

A coalition of California activists sued the company, its affiliates, individuals connected with the companies, and advertisers. Plaintiffs sought damages of \$2.2 trillion. Yes, \$2.2 trillion.

The State of Indiana intervened in the case and its share of a \$51 million settlement was approximately \$6.6 million. The State’s Attorney General has recognized that the judgment may never be collected from the defunct companies.

Nevertheless, following the California model, Indiana has enacted its own junk fax law. It was to become effective in January.

In another class action against the Dallas Mavericks, the team actually paid \$650,000 to settle junk fax litigation in Texas.

Junk faxes are classic nuisances. They use 20th century technology to invade consumers’ privacy and waste their paper and toner.

It also seems clear that junk faxes can backfire by generating ill will toward the advertisers whose messages are transmitted. Indeed, it may be argued that junk faxes are even more of a nuisance than unwanted telephone solicitations.

Pardon the pun: As a matter of fax, you can’t hang up on a fax.

*Solomon is an attorney with Garvey Schubert Barer. Reach him at [hsolomon@gsblaw.com](mailto:hsolomon@gsblaw.com).*

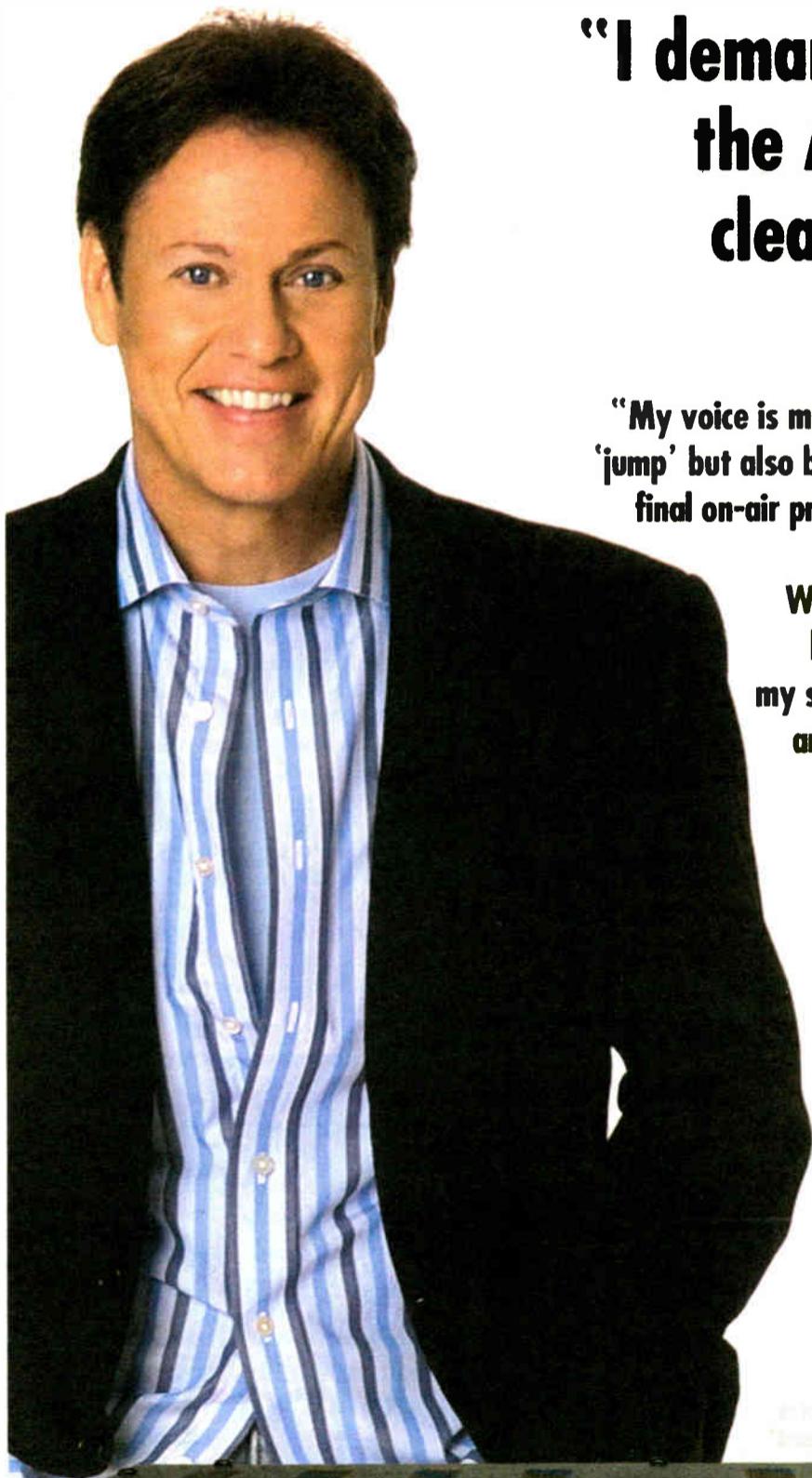
**“I demand the best...  
the Aphex 230 is  
clearly the best.”  
- Rick Dees**

**“My voice is my on air signature. I want it to ‘jump’ but also be clean, full and natural. Most final on-air processors are cranked to ‘stun’ and not very kind to voices. With the Aphex voice processor, both my voice and the voice of my sidekick Patti ‘Longlegs’ Lopez are incredibly open and present, even after going through the station’s loudness box.”**

The Aphex Model 230 Master Voice Channel is a combination of proprietary technologies and the highest quality components. Its performance cannot be duplicated by any other product or combination of products, hardware or software, at any price.

If you demand the best for voice processing, demand the Aphex Model 230.

**APHEX**  
[www.aphex.com](http://www.aphex.com)



## Newswatch

► Continued from page 2

**PPM:** The Philadelphia Radio Organization is launching a marketing campaign to help smooth the transition from radio diaries to the Portable People Meter system in the city. Arbitron agreed to provide seed money. In May, the city became the first market in the U.S. to be measured by the PPM, replacing diaries.

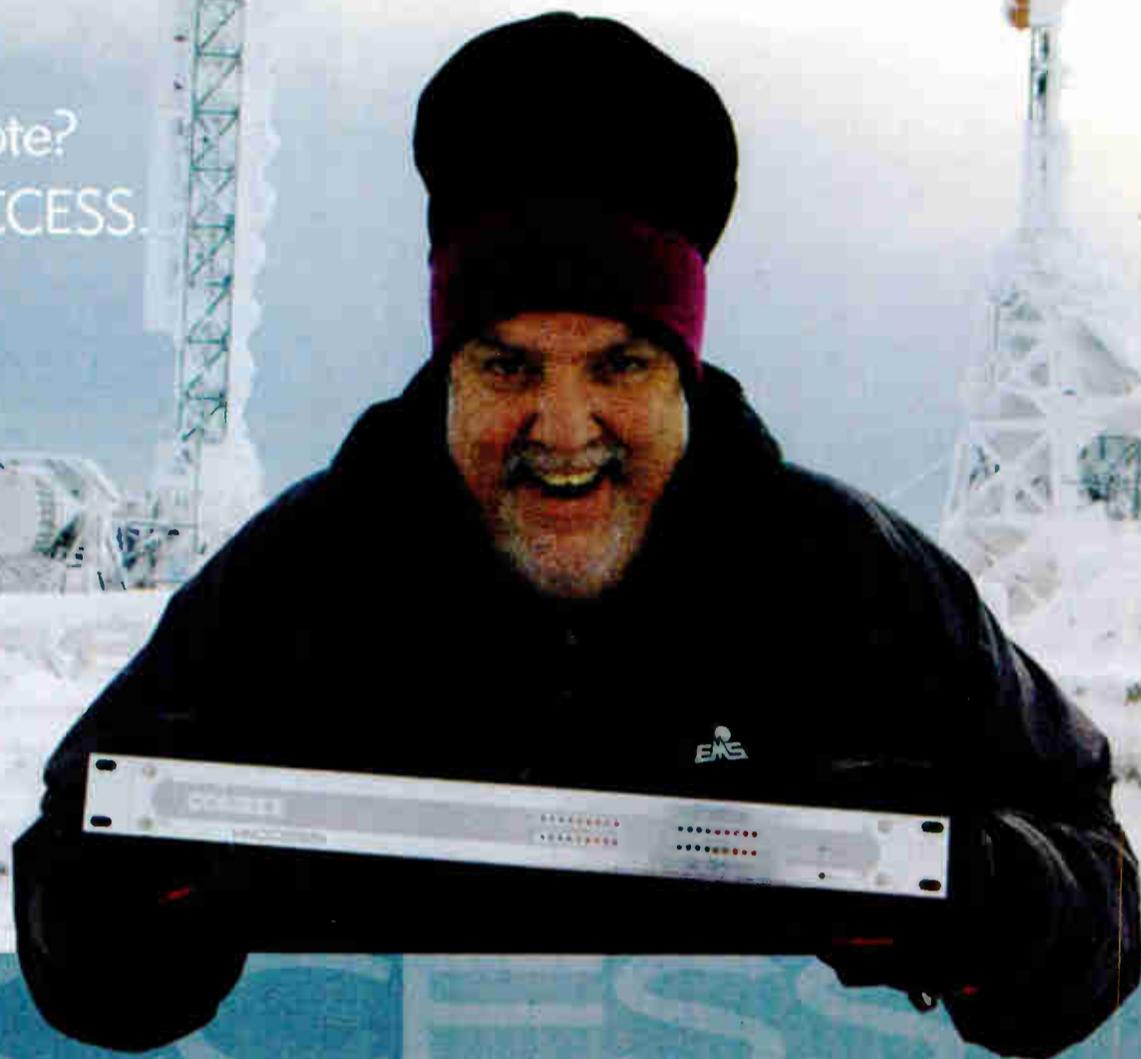
**BRAZIL’S** minister of communications was upbeat about the future of radio and HD Radio at an NAB breakfast sponsored by Broadcast Electronics and Ibiquity. He has advocated adoption of digital radio in Brazil, which has been conducting trials since 2005. Spurring IBOC there is a two-year tariff waiver on imported HD Radio transmitters.

**GRETCHEN:** Organizers called it the first HD Radio preview of a release by a major recording artist. The premiere of Gretchen Wilson’s “One of the Boys” was on multicast station “Gretchen 99.9 HD2” in Miami six days before the album’s release.

**AM DA:** The AM Directional Antenna Coalition filed its paperwork with the FCC, trying to get the commission moving toward allowing computer modeling as a means of verifying AM directional antenna performance. Numerous radio ownership groups and consulting engineers participated.

**AAS:** French codec manufacturer Aeta Audio Systems (AAS) is seeking to increase its U.S. presence by setting up a distribution network here. Based in the Paris area, AAS produces a line that centers on portable codecs, studio codecs and ENG mixers.

Impossible Remote?  
Nah, You've Got ACCESS.



### Meet Some Real-World Super Heroes...

Mark Ericson and the WOKQ morning team, along with Steve Vanni from Technet, recently used ACCESS to deliver a three hour remote from the top of Mt. Washington. For mere mortals, this would have been an impossible task. The height, the weather, the distance – all conspired to prevent a successful remote. But because they carried ACCESS, they became real-world super heroes.

ACCESS delivers mono or stereo over DSL, Cable, Wi-Fi, 3G cellular, satellite, POTS (yep, ACCESS is a full featured POTS codec and works seamlessly with Matrix, Vector and Bluebox)—plus some services you may not have even heard of. Given the challenges of the public Internet, it's no small boast to say that ACCESS will perform in real time over most available IP connections.

Want to learn more? Contact Comrex to get a FREE booklet that explains ACCESS BRIC technology and how it differs from traditional IP codecs. Become a real-world super hero!



Read more stories of real-world super heroes at [comrex.com](http://comrex.com):

- Springfield, MO: Miraculous ACCESS
- San Diego, CA: Somewhere...Beyond the Sea!
- Boston, MA: Zakk Wylde Concert—Ozzie Osborne's Guitarist Plays for WAAF at a Listener's Workplace!
- Lynn, MA: Toys for Tots—Remote on the Move
- Boston, MA: Car Dealerships at Christmas. ACCESS Delivers.
- UK: ACCESS on VSAT—A Clever Solution From Our Friends in the UK
- Cancun: Sunrise Over IP
- Brockton, MA: Minuteman Communications Always Gets Their Man... um... I Mean, Their Remote
- Alpena/Tawas City, MI: Are You Tired of STL-Over-the-Public-Internet Stories Yet?
- Dallas: The Ticket
- Amarillo, TX: You Gotta Do What You Gotta Do
- Asia: Radio Free Asia—Live From the Himalayas
- Way Up In The Sky: Live From 37,000 Feet

Are YOU a real-world super hero? Log on to [comrex.com](http://comrex.com) and let us know how you've used ACCESS to save the day at an impossible remote!

Toll Free: 800-237-1776 • [www.comrex.com](http://www.comrex.com) • e-mail: [info@comrex.com](mailto:info@comrex.com)  
19 Pine Road, Devens, MA 01434 USA • Tel: 978-784-1776 • Fax: 978-784-1717

Put Comrex On The Line.  
**COMREX**

**COOL STUFF 2007 AWARD WINNER**



Photo by Jim Peck

**Product:** PhoneBOX Solo  
**Company:** Broadcast Bionics

Judges said: "A nifty all-in-one software solution to replace telco hybrid hardware and call screening software using VoIP."

PhoneBOX Solo handles and routes talk show calls. It is software-driven with no need for hardware. It harnesses SIP, VoIP or ISDN technology to digitally route calls to air via a standard Windows PC and soundcard. Features include call recording, editing and playback, advanced visual talk back, database logging, caller ID, black listing and more. Load the software and you have up to eight lines for a single hybrid studio system. Options available: add call screening, remote

control and extra software hybrids.

Shown: Simeon Johnson, Duncan Smith and Dan McQuillin.

Shipping: June 1  
Price: From \$1,900  
Design: Broadcast Bionics Development Team  
Contact: 011-44-1444-473999, e-mail [sales@bionics.co.uk](mailto:sales@bionics.co.uk) or visit [www.bionics.co.uk](http://www.bionics.co.uk)

# Green

► Continued from page 1  
is very relevant with our target audience that coincides with the need to do something about global warming and promoting environmental responsibility," said Michael Hughes, vice president and GM for WTGB(FM) in Washington.

## Phasing out Styrofoam

Hughes is careful to point out that "The Globe" is not green yet, but is "going green" and learning to operate in a more environmentally efficient manner.

"Some things have been easy, like replacing our lighting fixtures with more efficient fluorescent where we can. We are even phasing out Styrofoam cups from the break room and recycling everything we can," Hughes said.

The station, formerly classic rock WARW(FM), is now Triple-A. In February it transitioned to its new image and began focusing on ways to encourage people to embrace an eco-friendly lifestyle.

The station also is taking steps to shrink its carbon footprint, a measure of the amount of carbon dioxide a company's energy consumption places in the environment through everyday operations. WTGB is in a program offered by Pepco Energy Services in the Washington area that measures a customer's power consumption and then, in turn, purchases the equal amount of wind power instead of coal-fired electricity.

The broadcaster is using energy from the program to power its 50,000-watt transmitter in Bethesda, Md., and paying a slightly higher electrical rate for the privilege to do so, said Jeff Loughridge, engineering market manager for CBS Radio.

"We pay a premium. The electricity we use may not come directly from a wind farm, but an equal amount is coming onto the grid each month from a non-carbon source," said Loughridge. "So we are using a mix from the grid."

Pepco offers residential and business customers a Green Energy program that uses electricity generated from renewable resources, such as wind, sunlight, water, reclaimed landfill gas and the burning of waste materials. According to the company's Web site, customers can choose from a variety of electricity products, ranging from "a mix of electricity that is 10 percent generated from the burning of landfill gas to electricity that is 100 percent generated from wind farms." It's unclear how much more subscribers pay to participate.

A comparison of residential rates reported by The Washington Post shows that Pepco charges \$0.1008 per kilowatt hour for coal-fired electricity and \$0.1234 per kilowatt hour for wind-generated power. Pepco would not release the terms of its contract with WARW, according to the account.

The station also is using an alternative energy hybrid vehicle for station promotional appearances and has another one on order, Hughes said. The station plans to build a performance studio within the next year, to be called the Globe Greenhouse.

See GREEN, page 10 ►



"We are very happy with our Logitek Mosaic."



It's a great console at a great price."

"Our experience with the three Logitek Consoles that we used for our broadcasts of the Olympics in Sydney, Salt Lake City, Athens and Torino built our confidence to purchase the new Mosaic for our NY Network sports studio. They are reliable, easy to set up and easy to reconfigure on the fly.

"The sports studio is the hub of all activity for our NCAA College basketball, NFL Football, NHL Hockey and all other sports broadcasts. It not only handles program audio, but also many IFB and intercom paths. We also have flexibility in our headphone monitoring that we never had before. Logitek's router based console has made frequent configuration changes easy with short notice. No more moving wires around. All of the routing changes are done by easy changes in the configuration software. Scene changes are fast and easy."



Conrad Trautmann  
SVP, Operations and Engineering  
Westwood One • New York City

# Logitek

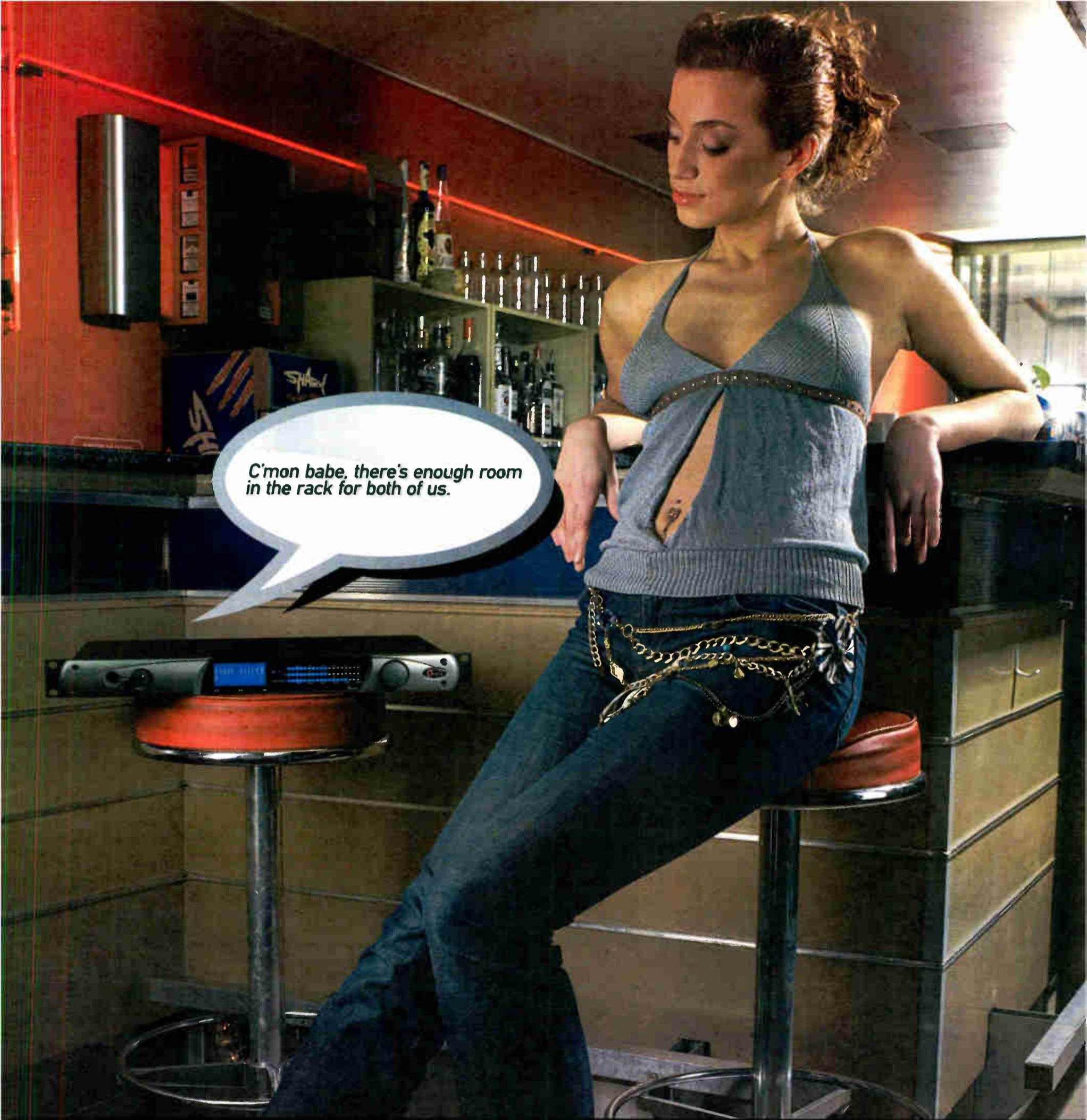
Console Router Systems

Logitek Electronic Systems, Inc.  
5622 Edgemoor • Houston, TX 77081  
1.800.231.5870 713.664.4470  
[info@logitekaudio.com](mailto:info@logitekaudio.com) [www.logitekaudio.com](http://www.logitekaudio.com)

© 2006 Logitek Electronic Systems, Inc.



Visit [radioworld.com](http://radioworld.com) for CoolCast video demos of all the 2007 "Cool Stuff" Award-winning products.



*C'mon babe, there's enough room  
in the rack for both of us.*

**OMNIA ONE: Small Box. Big Attitude.**

 **omnia**  
A Telos Company  
[OmniaAudio.com](http://OmniaAudio.com)

Omnia, ONE are registered trademarks of TLS Corp. ©2007 All Rights Reserved.

World Radio History

# Green

► Continued from page 8

The studio will be constructed at least partly from recycled materials with low-voltage lighting. "Sort of construction with a conscience," Hughes added.

According to an account in the Post, the station's green emphasis was inspired in part by air talent Cerphe Colwell, whose spouse Susan runs a business that designs environmentally friendly homes.

## Cutting energy consumption

Loughridge told RW the station has put some of its office equipment on timers and has directed employees to turn off all computers at night. It is looking at the possibility of using motion detectors for lighting certain areas of the leased facility in Silver Spring, Md., a Washington suburb.

"We are looking at every single way we consume energy and trying to incorporate changes to help cut back on the sum total. Even those little things will add up," he said.

Hughes says "The Globe" is hoping to turn its green focus into higher ratings and revenue. In the latest Arbitron ratings released in early March, the former WARW(FM) had a 1.7 (12+) share in the eighth-largest radio market, he said.

WARW ranked No. 17 among all listeners in the Arbitron Fall 2006 Metro report. The station's poor ratings factored



The Globe is using an alternative energy hybrid vehicle for station promotional appearances.

into the decision to change formats, Hughes said.

"This is a responsible concept that we think will work in this market and ultimately improve our ratings. The rock music fits with the green messaging we are doing," said Hughes, who said the station would sponsor an annual Earth Day concert and create promotions to encourage recycling, tree planting and the use of green products. Overall production of the station will reflect the environmentally responsible concept, he added.

Other CBS Radio stations are watch-

ing the experiment, Hughes said.

"I know corporate is excited about what we are doing. They'll look at it and see if it can be applied elsewhere," Hughes added.

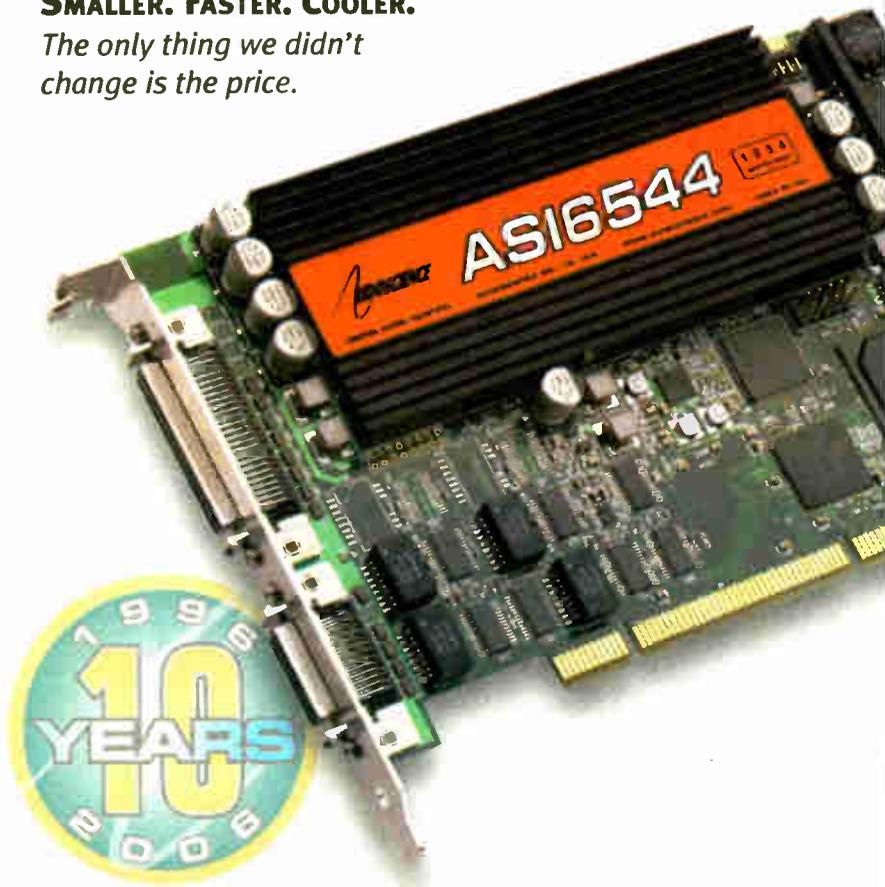
He would not speculate how long corporate is willing to give The Globe to see ratings success. He said CBS Radio has long stood on the principle of giving back to its station communities.

A few broadcasters have jumped on the green-colored trend. Entercom has been especially aggressive in its efforts to limit its carbon footprint (RW, Dec. 20, 2006). Officials for Citadel Broadcasting, Cox Radio and Cumulus Media have said they are monitoring energy consumption and practice conservation where possible.

What is your station doing differently to save energy consumption and costs? Write to radioworld@imaspub.com. ●

## SMALLER. FASTER. COOLER.

The only thing we didn't change is the price.



Our new 6500 series cards give you greater functionality at the same great price point. They're lead-free and RoHS compliant, too. With powerful DSPs, +24dBu levels, MRX™ multi-rate mixing, SSX™ surround-sound and AudioScience's "anything to anywhere" mixing and routing, our 6500 cards are ready for some serious broadcasting. To learn more, ask your automation VAR, or call +1-302-324-5333.

BUILT FOR BROADCAST

www.audioscience.com

AUDIOSCIENCE  
Sound Engineering  
Some Excellence

## COOL STUFF 2007 AWARD WINNER



Photo by Jim Peck

Product: ProMix 12

Company: Broadcast Tools Inc.

"A 12-channel console/mixer that looks and feels like a real console, with full broadcast functions in a compact footprint," one judge wrote.

No, this model won't have the console biggies trembling in their router cages. But it's a little reminder that broadcast users do like — and do need — economical solutions to many problems.

The ProMix 12 mixing console is for broadcast and audio production facilities that need an affordable compact solution. Features include a mix-minus output, an announce booth output with full duplex talkback, a monaural output, selectable metering and remote starts on all line-level stereo input channels.

Suitable for on-air applications, post-production or fieldwork.

Shown: Connie Miller.

Shipping: Now

Price: \$1,599

Contact: Visit [www.broadcasttools.com](http://www.broadcasttools.com) or e-mail [support@broadcasttools.com](mailto:support@broadcasttools.com)

## COOL STUFF 2007 AWARD WINNER



Product: ACCESS Portable

Company: Comrex Corp.

"Doing near-broadcast quality remotes with a highly crafted handheld device via a cellphone call really revolutionizes that activity," one judge wrote.

The ACCESS Portable had been demoed earlier but as of NAB2007 it is now shipping. It allows high-quality, low-delay mono or stereo audio to be delivered over wired or wireless public Internet.

Comrex has been in the forefront of pushing change in how remotes are delivered. ACCESS is capable of using circuits like DSL, broadband cable, POTS and T1/E1 as well as wireless circuits like satellite, Wi-Fi, EVDO and other 3G wireless data networks. It is also a full-featured POTS codec.

The codec has eight BRIC algorithms to accommodate jittery or difficult circuits. Also available is an optional suite of standard AAC algorithms for optimized audio quality when used on managed data networks. An optional "clip-on" mixer provides five more mic/line inputs and headphone outputs.

Shown: Kris Bobo and Tom Hartnett.

Shipping: Now

Price: \$3,800

Design: Comrex Engineering and Design Team

Contact: (800) 237-1776, e-mail [info@comrex.com](mailto:info@comrex.com) or visit [www.comrex.com](http://www.comrex.com)



Photo by Jim Peck

# Radio Has Never Been Bigger.

## MONETIZE YOUR FM SIGNAL WITH REAL FM



real **FM**

- **REAL FM** allows radio content blasts to be synchronized with existing FM broadcasts and sent to multiple receiving devices equipped with an FM chip, such as **REAL FM** receivers, cell phones, iPods, or other PDAs.
- **REAL FM** provides a rich information channel to dramatically enhance the FM broadcast experience.
- **REAL FM** provides new revenue stream for FM broadcasters.
- With **REAL FM**, listeners will be able to see information on the song and artist currently playing on the radio, buy the ring tone of the song currently playing, and immediately download the song to their device.



## GLOBAL SECURITY SYSTEMS

[www.gssnet.us](http://www.gssnet.us) or 601.709.4240

# Workbench

Radio World, June 6, 2007

Past columns are archived at [radioworld.com](http://radioworld.com)

## Fight Back Against Copper Theft

by John Bisset

If you don't peruse Radio World Online Newsbytes, you're missing some great stories.

Here's a case in point. As reported on RWO, broadcasters and authorities in Eugene, Ore., recently met to talk about the growing problem of metal theft there.

Cumulus engineer Tom Woods reports that non-ferrous metal theft in Eugene has gotten worse over the last year, with several stations losing metal from transmitter sites. Thieves broke through their tower fence and made off with a piece of 3-1/8-inch oxidized outer conductor. Others have been even less fortunate. KPNW, for instance, had its entire AM above-ground counterpoise ground system cut up and taken away.

Meetings involving the local SBE chapter and the Lane County Sheriff's office have proven effective in helping to deal with the copper theft.

Raising awareness is a start, but the engineers also took a specific step that should catch future thieves.

The group prepared a plywood panel of samples of different types of feed-line and ground radial wire. The panel now hangs on a wall at Schnitzer Steel, the major recycler in the area. The recyclers will use the board of samples to match up similar types of recyclables. If there is a match, Schnitzer's will start calling numbers from a list of broadcast engineers who can help determine if the recycled metal had been stolen.

In addition, the recycling company has agreed to start asking for business cards from recyclers, to determine if they are, in fact, legitimate owners of any recyclable metal that resembles anything that broadcasters use.

Perhaps your SBE chapter would like



Fig. 1: The silver formula of Conducto-Lube reduces contact resistance.

to take on a similar project for your local recycling companies.

In the meantime, broadcasters in Eugene were asked by the sheriff's office to improve lighting and check locks at sites, to discourage future theft. Some great ideas, Tom! Thanks for sharing them with us.

\*\*\*

Tom Norman, CPBE, was once the chief engineer of KVZK(TV) in American Samoa.

In those days, there was still an operational, though crippled, aerial tramway connecting Mauga O Ali'i on one side of the harbor with the transmitter site at Mt. Alava. The tram was powered by a 100

HP three-phase motor and a control system consisting of things like contactors, saturable core reactors, electrical tachometers and other stuff that would now be considered exotic.

Power was delivered to this entire system by way of a circuit disconnect box containing three 275 Amp fuses. One day, the tram supervisor called to ask if Tom had any ideas why the fuses kept blowing. His solution is something that should be in every engineer's bag of tricks.

The Cool-Amp Conducto-Lube Company manufactures two products. One is silver plating powder, the other is a conductive silver grease. Take a look

at [www.cool-amp.com](http://www.cool-amp.com) for information.

While working in the Electrical Engineering Labs at the University of Wyoming, Tom used the Cool-Amp powder to plate printed circuit boards. During his career, he has used the conductive silver grease to revive failed slide switches and such.

But for the aerial tramway in American Samoa, Tom coated the ends of the fuses with Conducto-Lube, and the problem with fuses blowing due to contact resistance disappeared immediately.

This was all the more remarkable due to the highly corrosive environment of the tropics and the 30 years the disconnect box had been living in that environment.

This stuff is expensive, but Tom can't think of anything that is even nearly as

See LUBE, page 14 ▶



Fig. 2: Document all ground points with digital photos.

## NEW! A Box for All Seasons!

An all-digital Stereo "Utility Processor" for leveling and peak control

Inovonics' 261 is the ideal, low-cost solution for "whatever ails you" around the broadcast plant. It combines gated, gain-riding AGC, platform-based average level compression and tight 'look-ahead' peak control. Use it to tame a mic channel, to normalize levels between music and voice tracks, to protect an STL or for streaming.

Menu-driven setup is quick and easy. Processing functions may be enabled independently or combined for a comprehensive leveling system. Basic parameters are adjustable, but not to an extent to ever get you into trouble. Front-panel alarms and rear-panel 'tallies' signal dead air and out-of-limits conditions.

The 261 accepts analog or digital inputs and gives analog and digital outputs simultaneously. Its DSP-based design is simple, straightforward and sonically colorless.

Model 261 - \$1150

For full technical details, visit

[www.inovon.com](http://www.inovon.com)



**Inovonics**  
1305 Fair Ave. • Santa Cruz, CA 95060  
TEL: (831) 458-0552 • FAX: (831) 458-0554  
[www.inovon.com](http://www.inovon.com) • e-mail: [info@inovon.com](mailto:info@inovon.com)

# “My Number One Codec Rental is Zephyr Xstream”

-Steve Kirsch, President Silver Lake Audio



Rack 'em and stack 'em! The Silver Lake Audio Crew pictured from left to right: Steve Kirsch, Ken Stiver, Kirby Miovac and Jay Shoemaker

“When ISDN equipment rentals began in the early 1990s, we started with an equal number of different companies’ codecs. Today, Silver Lake has over 100 Zephyrs in stock, ten times more than any other brand.” says Steve Kirsch, owner of Silver Lake Audio.

The reasons should be obvious. Reliability, ease of use, compatibility, great support.

Telos: The Best Way To Hear From There.

And there. And there. And there.

*Telos*  
AUDIO | NETWORKS  
[www.telos-systems.com](http://www.telos-systems.com)

# Lube

► Continued from page 12

good. A small quantity of this conductive lubricant will solve all kinds of problems.

Tom Norman is a senior engineer with Burst Video and can be reached at [tomn@burstvideo.com](mailto:tomn@burstvideo.com).

★★★

Speaking of grounding, now is a good time to document perimeter grounding with your digital camera. These pictures, like the one shown in Fig. 2, can be useful should an insurance claim be necessary. It also gives you the opportunity to check that all grounds are secure — and that wire, rod or strap haven't been stolen.

AM engineers, if your directional parameters go out, check your ground system before cranking on the phasor. Walk all the towers and check that the ground system is intact. Again, taking pictures might save you if theft occurs.

★★★

Visit [radioworld.com](http://radioworld.com) for CoolCast video demos of all the 2007 "Cool Stuff" Award-winning products.



Bob Culver, principal in the firm Lohnes and Culver, writes that he finds our *Workbench* columns interesting and informative. He says it's nice to know that others have found problems similar to ones Bob has resolved and have discovered their own — sometimes unique and entertaining — solutions.

To our discussion of UPS power supplies and standby generators Bob adds this experience:

When he was involved in the DAB field testing project, designing the test plan and the vehicle to conduct the testing, he obtained a large camper-type vehicle and planned for lots of AC power for it. This included two Onan 6 kW low-speed gasoline generators and two Best Power Products uninterruptible power supplies to go with them.

Being good engineers, the testers purchased the newest items within their budget. The generators had solid-state regulation circuits. The UPS's, Fortress models, used solid-state monitoring and regulation. The vendors of both were told how the devices would be used.

Unfortunately, the two systems fought each other. The uninterruptible power supplies worked flawlessly on "shore power" but would not accept the generator power because of some slight voltage "regulator" glitches in the generator output waveform.

The supplies were programmable, and with the help of the manufacturer and access to some "secret" programming

lines, Bob and his crew attempted to tailor the input alarm and output control values to make them work. No luck.

The UPS's were loaners for the duration of the tests, and the vendor graciously took them back and substituted Ferrups supplies, which worked just fine. It turned out that the engineering intuition was worth following — there were some occasions when a generator would go off-line, and the UPS operation saved hours of testing that the power fault

would have destroyed.

Bob Culver can be reached at [bobcul@locul.com](mailto:bobcul@locul.com).

John Bisset has worked as a chief engineer and contract engineer for 38 years. He is the northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386, or [jbisset@bdcast.com](mailto:jbisset@bdcast.com). Faxed submissions can be sent to (603) 472-4944. Submissions for this column are encouraged, and qualify for SBE recertification credit.

## COOL STUFF 2007 AWARD WINNER



Product: Watchband Remote AM/FM/RDS Receiver  
Company: Burk Technology

Judges found: "With the cleverly named Watchband, engineers and groups can remotely monitor their stations via a Web page, including audio metrics, out-of-tolerance and off-air audio alarms with full logging. It can even generate playlists for market stations."

The receiver delivers Web-based market monitoring tools to engineers, managers and PDs. It can create detailed playlist reports

for any station broadcasting artist and song title info with Radio Text. Managers and program directors can compare their own rotations to other stations in the market; engineers can monitor real-time field intensity data for any station, as well as review strip charts for analysis of the entire band.

Stereo, phase and L/R audio levels, averages and peaks are logged for immediate alarm reporting or historical review. Access it all from the Web. The company credits PDs and broadcast engineers for input that helped develop the product.

Stephen Dinkel is shown in the Burk booth.



Photo by Jim Peck

Shipping: Now  
Price: \$1,195 NAB price (through June 30); \$1,495 after that.  
Design: Burk team  
Contact: Burk dealers or e-mail [sales@burk.com](mailto:sales@burk.com) or call (800) 255-8090

## Get the Best Prices on all the Popular Brands!



**YOUR #1  
BROADCAST  
PROVIDER**

- BELAR SHURE
- TFT MARI ELECTRONICS
- AUDIOARTS ENGINEERING
- Omnia ERI SYSTEMS
- Telos
- JK Audio
- AVR ELECTRONICS
- JBL
- ANDREW ORBAN
- SENNHEISER
- COMREX MACKIE
- Tieline OMNIRAX
- TASCAM INOVONICS
- Neumann USA
- STACO ENERGY PRODUCTS CO. DENON PROFESSIONAL
- FE ARRAKIS SYSTEMS HENRY ENGINEERING
- JAMPROC ANTENNAS AND RF SYSTEMS, INC.
- EY datavideo tvlog

...and much more!

Contact Chuck Maines at Broadcast Depot to get your next quote.



E-mail: [cmaines@7bd.com](mailto:cmaines@7bd.com) | [www.7bd.com](http://www.7bd.com)  
Toll-Free: 877-90-BDNow (23669) | Fax: 765-983-3817

## COOL STUFF 2007 AWARD WINNER



Product: Model M3 HD Radio Precision Multi-Monitor  
Company: DaySequerra

"The snazzy M3 contains three separate AM, FM and HD Radio tuners in a 2RU box to monitor and alarm virtually everything," a judge observed.

The M3 gives you a trio of independent frequency-agile tuners and vacuum florescent displays. Each tuner can monitor and alarm six parameters including loss of audio, RF carrier, OFDM lock, RBDS data, PAD data and multi-channel availability or delay bit with six relays per tuner, 18 total. Each has 20 presets, analog stereo and full-time AES output. The manufacturer is proud of the unit's high-quality audio output and integrated alarms. "The M3 permits engineers to alarm their data, both PAD and RBDS, for both loss of data or static conditions," it states. "It eliminates multiple points of failure encountered with outboard silence sensors, power supplies, etc."

"Wouldn't a single receiver for all my HD multicast channels make a lot of sense?" a judge asks rhetorically. "Nuff said."

Shown: Art Constantine and David Day.

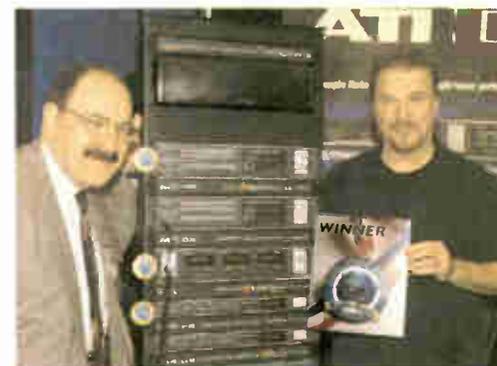


Photo by Jim Peck

Shipping: June  
Price: \$3,295  
Design: DaySequerra  
Contact: (856) 719-9900, e-mail [sales@daysequerra.com](mailto:sales@daysequerra.com) or visit [www.daysequerra.com](http://www.daysequerra.com)

# You're looking at a complete audio-over-IP routing system.

(Just add Cisco.™)

**Administer this** • The beauty of the Web is that you can get information anywhere. Same thing with Axia: you can set up and **administer an entire building full of Axia equipment** – audio nodes, consoles, virtual routers, whatever – from your own comfy office chair. All you need is a standard Web browser (PC or Mac, we like 'em both). Put an Internet gateway in your Axia network and you can even tweak stuff remotely, from home or anywhere there's a Net connection. Hey, isn't it time for a Mochachino?

**It's not rude to point** • Little kids tell mommy what they want by pointing – a pretty intuitive way of doing things. PathfinderPC software gives talent the same convenience. You can **build custom "button panels"** to execute complex operations with just one click. You can map these panels



to controller modules on Element consoles or to turret-mounted controls, place mini applications on studio computer screens, even run them on touchscreen monitors.

**Automation station** • Wouldn't it be cool to have a **self-monitoring air chain with silence-sense** that can fix problems, then e-mail a status report? To be able to switch your program feed from Studio "A" to Studio "B" with one button? Or build custom switching apps and scheduled scene changes based on Boolean logic and stacking events? PathfinderPC software does all these things and more. But unlike HAL 9000, it doesn't talk back to you.

**Nothin' but Net** • Did you know you can plug a PC directly into an IP Audio network to exchange audio? Can't do that with a mainframe router. Well, you *could* add more input cards to the mainframe, buy high-end audio cards and run more wiring... but with Axia, you just install the **IP-Audio Driver** on any Windows PC to send and receive pure digital audio right through the PC's Ethernet port – no sound card required or additional router inputs needed. The single-stream version is great for audio workstations; the multi-stream version lets you send and record **16 stereo channels simultaneously** – perfect for digital automation systems.

**Put that in your pipe** • How many discrete wires can a CAT-6 cable replace? Well, a T-3 data link has 44.7 Mbps of throughput. But Axia networks. Gigabit Ethernet links give 1000 Mbps of throughput between studios – more than 22 times the capacity of a T-3; enough for 250 stereo channels per link – the equivalent of a **500-pair bundle on one skinny piece of CAT-6**. Use media converters and optical fiber for even higher signal density. Think that might save a little coin in a multi-studio build-out?

**Jammin' on the mic** • Radio studios and microphones go together like Homer Simpson and donuts. Unfortunately, so do preamps, mic compressors, EQ boxes, de-essers – let's face it: most studios house more flying saucers than Area 51. Axia helps clean up the clutter by including mic preamps with our Microphone Nodes; not bargain-basement units either, but **studio grade preamps** with headroom enough to handle Chaka Kahn. Phantom power, too. And if you choose to use Axia Element consoles in your studios, you'll find world-class mic processing built right in: vocal dynamics (compression and de-essing) from the audio processing gurus at Omnia, plus three-band parametric EQ with SmartQ, available on every mic input. Rap on, Grandmaster.

**Very logical, Captain** • Routing logic with audio used to be as hard as performing the Vulcan Mind Meld. But Axia makes it simple, converting machine logic to data and pairing it with audio streams. So **logic follows audio throughout the facility** on Axia's switched Ethernet backbone. Eight assignable GPI/GPO logic ports, each with five opto-isolated inputs/outputs are built into every Element power supply, so you can control on-air lights, monitor mutes, CD players, DAT decks, profanity delays, etc. Got more than eight audio devices? Add a GPIO node like this one wherever you've got gear.

**Level headed** • These green, bouncing dots built into every Axia Audio Node are confidence meters. One glance and you know whether an audio source is really active – or just playing possum.



**Push to play** • Axia Router Selector Nodes are **really advanced selector and monitor panels** that you can put anywhere you need access to audio streams. Like newsrooms, dubbing stations, or even the station's TOC, so you can monitor any of the thousands of audio streams on your network at a moment's notice. The LCD screen scrolls through a list of available streams; the eight Fast Access keys let you store and recall the streams you use most. There's even an input, for convenient connection of an analog or AES device. Sweet.

**AES yes** • You like your audio to stay digital as much as possible, right? We get that, our AES/EBU Audio Nodes let you plug AES3 sources right into the network. Studio-grade sample-rate converters are inside; anything from **32 kHz to 96 kHz** will work. Oh, and there are 8 AES ins + 8 AES outs in each node. Digital distribution amp, anyone?

**Heavyweight champion** • This Axia StudioEngine works with our Element Modular Consoles (the fastest growing console brand in the world, by the way) to direct multiple simultaneous inputs and outputs, mix audio, apply EQ, process voice dynamics, and generate multiple mix minuses and monitor feeds on the fly. To make sure it delivers the reliability and ultra low latency broadcast audio demands, we powered the StudioEngine with a fast, robust version of Linux – so fast that **total input to output latency is just a few hundred microseconds**. How can one little box do so much? There's a blazingly fast Intel processor inside with enough CPU muscle to lift a small building. Strong *and* fast. All would approve.

**Brains in the box** • The typical radio jock cares for studio equipment about the same as a five-year-old cares for a puppy: haphazardly, if at all. That's why we **took the CPU out** of our Element modular console and put it in here, with the power supply and GPIO ports.

That means a greatly reduced chance of being taken off the air by a Coke spilled into the board. Because we know that you have better things to do on a Sunday night than trying to dehumidify circuit boards with a hair dryer.

**You got to have friends** • Delivery system providers like ENCO, Prophet, BSI, BE, iMediaTouch, DAVID Systems and more all have products that **work directly** with Axia networks. So do hardware makers like AudioScience, International Datacasting, 25/Seven, Tripos and Omnia. Check out the whole list at [AxiaAudio.com/partners](http://AxiaAudio.com/partners).



**Quick Connect** • Axia I/O is presented on RJ-45 and adheres to the StudioHub+ standard. A couple of clicks and you're done.



[AxiaAudio.com](http://AxiaAudio.com)

# Is It Lights Out for Webcasters?

*As the Effective Date for New Royalties Approaches, Webcasters Explore Their Options*

The new Webcasting royalty rates scheduled to go into effect on July 15 are already having an impact — both online and in Washington.

In our final look at this subject (for the time being), we'll consider the alternatives to the new rates and other approaches that Webcasters might consider.

It has now become clear as the math has been worked out that large royalty increases would be levied on all Webcasters, large and small, commercial and non-commercial. Numerous players have projected that their royalty payments would skyrocket from single-digit percentages of their revenues to over 50 percent, and many Webcasters have stated they would be forced to cease operations under these conditions. (Included among the latter are some large, well-established entities.)

As a result, much public protest has been seen on the Net, and many Webcasters have added messages to their sites and streams soliciting support from listeners or calling them to action in various campaigns.

Concurrently, the industry is examining its alternatives.

## The non-statutory route

One approach that may not be widely understood is that the statutory licensing of sound recording rights at issue here is not a mandatory requirement for Webcasters, but is offered as a convenience to avoid the need to obtain clearances from every song's sound recording copyright holder individually before broadcasting its content.

Clearly the latter approach would be a massive and inefficient effort, and excessively labor-intensive for all parties. So while rights holders generally do not favor any such compulsory licensing regime (since it limits their ability to negotiate terms), the statutory license for sound recordings' Webcast rights is a concession to expediency. Ideally its convenience induces usage levels that outweigh any loss of licensing leverage for rights holders.

If a Webcaster or group of Webcasters wanted to, however, it could make its own alternative arrangements with Sound Exchange, or go directly to individual rights holders of content it wanted to broadcast, to obtain Webcasting rights for the sound recordings.

This approach potentially could provide a more favorable rate to the Webcaster, just as public radio (CPB stations) collectively arranged for their music Webcasting during the period 2002–05.

At present there are apparently a few Webcasters exploring or having already achieved such an arrangement for the current rate period (2006–10). One would expect that this could be limiting to the range of material aired, but that may not be a problem for some narrowly formatted services that can serve their audiences with material coming from only a few rights holders (certain ethnic music, emerging artist or other narrowcast streams, for example).

It is also possible that the Webcaster could make such direct arrangements

with rights holders for *some* of the content it broadcasts, and work under the statutory license for the remainder. The latter could then be prorated by an appropriate percentage representing the



**Many Webcasters have stated they would be forced to cease operations under these conditions.**

amount of content on the stream that was not directly licensed.

A potential downside of the direct-licensing approach affects the musicians themselves. The statutory royalties collected by Sound Exchange are distributed in an even split between the performance rights holder (typically the record label) and the musicians that performed on the recording. If a Webcaster negotiates with the rights holder directly, the musicians could be cut out of the deal, while the labels would lose nothing but the Webcaster cuts his/her fees in half, for example.

## Other options

Additional avenues for relief remain open.

After the CRB rejected all requests for rehearing of its decision, its final ruling appears in the Federal Register. Subsequent appellate action then moves to the U.S. Court of Appeals, where an appeal is expected, which must be filed within 30 days of the ruling's publication date. That appeal process could then extend for a year or more before a final decision is made.

Meanwhile, absent any other emergency ruling by the courts, the new rates (retroactive to Jan. 1, 2006) will remain in effect.

At any point in this process, Sound Exchange could also pursue a private, out-of-court settlement with some or all parties, which could differ significantly from the CRB ruling, but this seems unlikely at this time.

Finally, there is a legislative route: Congress could pass a law that overrides or alters the CRB rates for some or all Webcasters, as it did with the Small Webcaster Settlement Act's adjustments to the 2002 ruling. (The SWSA has no impact on rates after 2005, and its rate relief was explicitly non-precedential, so it cannot be cited as a basis for future rates.)

## The Big Picture



by Skip Pizzi

al impact may be more subtle, as Webcasters work their way around the new rules. Some streams may disappear, while others reduce the variety of their content, block access from certain regions, play fewer songs per hour (i.e., more talk, more commercials), or set limits on the number of simultaneous streams served. Many of these results could proceed in gradually increasing measure over the next five years, further decreasing their obvious linkage to the effect of new rates.

Another indirect impact of the current discussion is the notice that has been drawn to the disparity between performance royalty rates across different radio platforms — terrestrial, satellite and Internet — in particular, the fact that terrestrial radio remains exempt from sound recording royalties.

Thus the coattails of this debate may extend beyond the Internet radio space, stimulating subsequent consideration of levying sound recording royalties on terrestrial radio broadcasting.

Meanwhile, broadcasters would be well advised to seek counsel and study how they might most cost-effectively achieve their Webcasting goals during the new rules period, while observing closely (and perhaps participating in) the ongoing actions toward relief.

Past columns are archived at radioworld.com.

Skip Pizzi is contributing editor of Radio World. Comment on this or any article to radioworld@imaspub.com

## COOL STUFF 2007 AWARD WINNER



**Product:** AFD-1 Arc and Flame Detector  
**Company:** Burk Technology

We knew this was cool when Peter Burk showed us the prototype a year ago.

The AFD-1 interfaces with a remote facility management system, such as the Burk Technology ARC Plus, ARC-16, GSC3000 or VRC2500, to notify personnel of electrical arcs and flame. The unit reliably detects a pilot light, flame or arc from 15 feet; it is insensitive to daylight. Applications include transmitter enclosures, antenna tuning units, transfer switches, etc.

Early notification of flashovers allows corrective action to avoid emergency repairs.

Plus it's just cool to stand there and watch it work.

Shown: Burk's John Härtzell and Peter Burk.

Shipping: Now

Price: \$459

Contact: Burk dealers or or e-mail [sales@burk.com](mailto:sales@burk.com) or call (800) 255-8090

500  
~~250~~ studios already?

Time flies when you're having fun!

Hard to believe, but we passed the ~~250~~<sup>500</sup> studio mark recently. We're told that it's a major milestone, but we prefer to call it a good start.

In fact, our clients have made Axia the **fastest growing console company** in radio. To you, we say "thanks" for your trust and enthusiasm. And to those of you who aren't yet clients: we're ready when you are.

Okay, back to work now. (Consoles don't build themselves, you know.)



[www.AxiaAudio.com](http://www.AxiaAudio.com)

## RADIO IT MANAGEMENT

# An Online Network for Student Stations

*IBS and Backbone Establish Pilot For a Net-based Student System*

by James Careless

The Intercollegiate Broadcasting System has launched an Internet radio network aimed at student broadcasters, working with supplier Backbone Networks Corp. A proof-of-concept pilot project is underway.

Operated by the IBS using the high-speed networks and servers of Backbone, the IBS SRN is a resource of shared programming for student broadcasters.

To access it and stream their own con-

tent over the Web, "all a student-run station needs is an ordinary Apple Mac computer and a broadband connection," says Richard Cerny, Backbone's president. "We handle everything else, letting their listeners tune in using iTunes or QuickTime."

According to IBS Chief Operating Officer Fritz Kass, the advantages are substantial for high school/collegiate radio



station users.

"IBS members can draw on the programming of other IBS members over the network," he said. "This is especially valuable for national interest college sporting events (or) a national interest speaker, concert or news story available at one IBS member station but of interest to all 1,000 school and college radio station IBS serves." Similarly, each station will be able to syndicate its own programming to sister stations on the network.

For IBS stations to become charter members and take part in the current 25-station pilot launch, "the cost per station is only \$750, which includes a \$75 set-up fee and three months of Backbone hosting their Internet station at \$225/month," Cerny said. Content is from members and from third-party sources of royalty-free music, news and commentary that will syndicate content to the network. Some content, such as IDs adding a professional network sound and feel, will be provided by IBS.

IBS has a contract with Backbone, which is paid out of that income. "This fee is primarily intended to help offset Backbone's infrastructure and development costs, and we anticipate future costs to be reduced by ads and/or underwriting," Cerny said.

## Streams

A wealth of student-generated content available through the IBS SRN will allow members to "expand their online stations to 24/365 without being in the studio all the time," says Kass.

Being able to deliver 24 hours of programming with three hours of studio time "is a critical education advantage for a high school student radio that has a limited school day and no campus or dormitories," said Kass.

To aid student stations in creating their own online stations, the network provides each member with archive storage for up to 250 hours of songs, images and clips. One important feature: Music on these programs is covered by the IBS member's existing copyright music licenses facilitated by IBS agreement with the copyright holders, so there's no fear of extra copyright fees levied against SRN member stations.

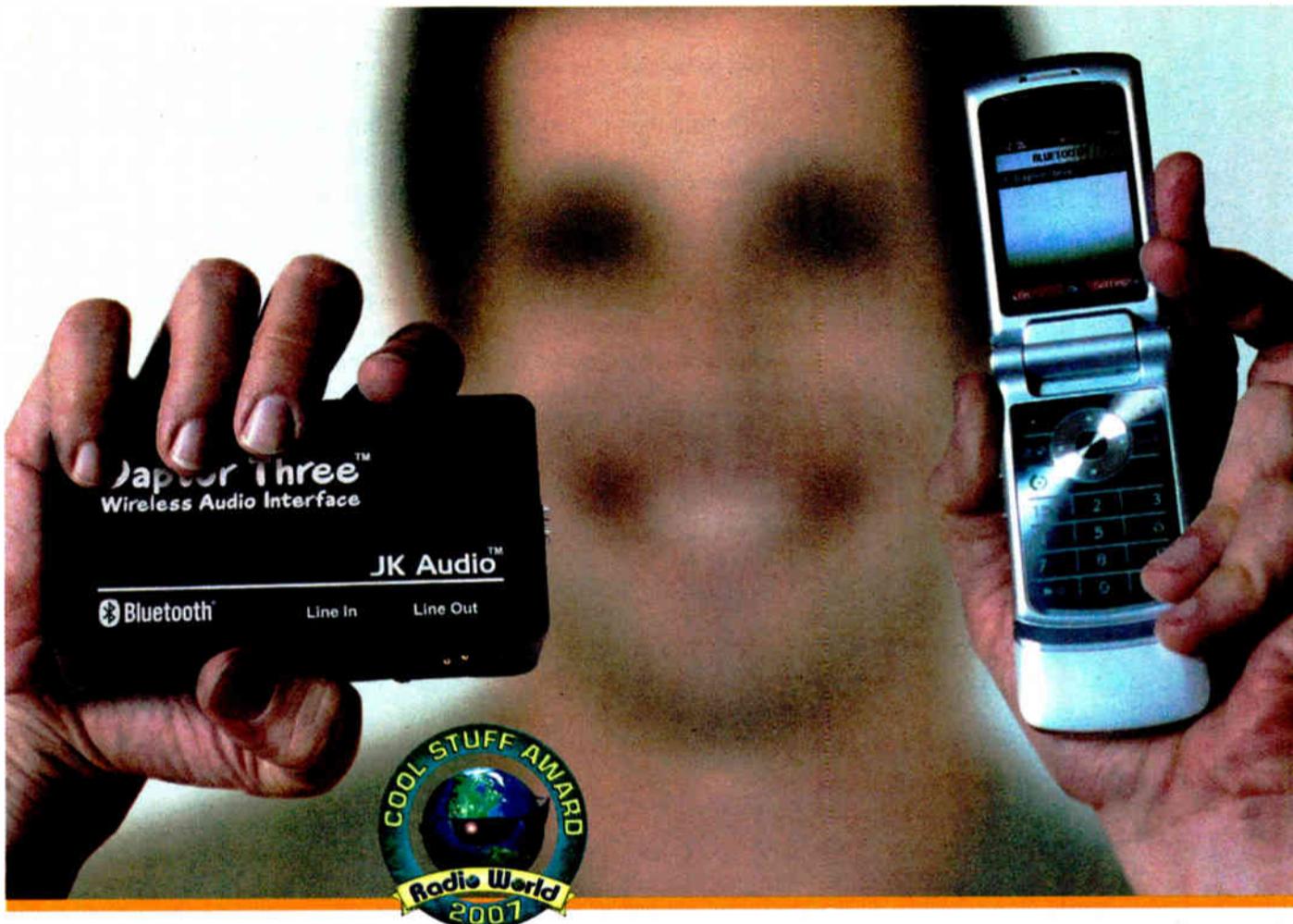
Second, joining the IBS SRN gives a student station access to program automation capability, using Backbone Radio Pro client software. "In addition, this gives student stations the ability to cover remote events, like concerts and 'away' games from other schools," Cerny said. "The software also provides automated reporting and record keeping."

The IBS SRN gives each station enough bandwidth to support up to 200 streams at a time, with a monthly ceiling of 15,900 monthly listener hours. Backbone's network infrastructure can be accessed by participating outside program producers to supply material to IBS.

Finally, using the IBS SRN, "IBS members can build their national audience and brands, and the IBS brand, with sound logos and famous person station IDs," Cerny said.

The network uses MPEG-4 AAC as its streaming format. "Conforming to this standard not only ensures universal acceptance across all listening platforms, but it also enables each school to partner with the Apple iTunes store in preparing

See IBS, page 19 ▶



## Cool Stuff: Daptor Three

JK Audio's New Bluetooth® Enabled Wireless Audio Interface.  
You'll Be Smiling, Too.

At NAB 2007, JK Audio introduced Daptor Three, a simple, professional audio interface using Bluetooth® Wireless Technology.

We knew we were onto something, but weren't really prepared for the exceptionally enthusiastic response we received!

Daptor Three allows balanced and unbalanced mono connections to your cell phone and connects like any other Bluetooth® Wireless Technology enabled headset. Simply press and hold the recessed button on Daptor Three to initiate pairing mode.

If a connection to your cell phone is not available, it will connect to any other product, such as a laptop, that allows a Bluetooth® wireless connection. This wireless headphone mode offers a full audio bandwidth stereo connection.

Simple and exceptionally cool. Now, if you want to go ga-ga, we understand completely...

Available August 2007 through authorized dealers.

**JK Audio**  
TOOLS FOR SUCCESSFUL RADIO

www.jkaudio.com

JK Audio, Inc. Sandwich, IL 60548 USA • Toll Free: 800-552-8346 • Tel: 815-786-2929 • Fax: 815-786-8502 • info@jkaudio.com

# IBS

► Continued from page 18  
material, including artist/album annotation and cover art images that display to listeners' free QuickTime or iTunes players," the organizations stated in their announcement.

## Challenges

Backbone started out as a developer of broadcasting software, with the aim of developing a robust architecture for Internet radio streaming. "The cornerstones of the company's technology lie in its client/server implementation of MPEG-4 automation, streaming and reporting," Cerny said "Backbone now offers this software with a no-cost license under a service model using company-hosted facilities."

For IBS, the establishment of the IBS SRN exponentially increases its ability to serve the non-profit organization's 1,000

**All a student-run station needs is an ordinary Apple Mac computer and a broadband connection.**

— Richard Cerny

member stations. Backbone has "solved all the technology issues," says Kass. Now IBS needs to get the information out to its 1,000 school and college radio stations.

This should not be a major challenge. However, convincing a sufficient number of members to sign up for the IBS SRN could be. The problem is not quality but cost: IBS member stations are publicly owned and thinly funded. They can manage to afford the annual \$95 IBS membership fee, but paying another \$2,700 a year to join the IBS SRN may be more than most can financially stomach.

Mindful of this, the pilot phase of the IBS SRN only needs 25 stations to be operational. "We have 10-12 members so far, and expect to hit the 25-station mark without major problems," says Richard Cerny.

He declined to list participating stations. "Stations are immediately operational," he said in May, "and we anticipate rudimentary content sharing by July 1, live feed sharing by Aug. 1, fully operational by Sept. 1."

As for adding further members? "As time goes on, IBS members on the IBS SRN will have funding options, such as participating in grants or advertising and underwriting opportunities to either defray or eliminate the network costs," Kass said.

Organizers are hoping that \$225 a month for access to substantial programming resources, remote broadcasting links and complete Web hosting/streaming will sound like an astoundingly good deal.

For information about IBS, visit [www.ibsradio.org](http://www.ibsradio.org).

## COOL STUFF 2007 AWARD WINNER



**Product:** Aruba FMeXtra Receiver  
**Company:** Digital Radio Express Inc.

It's a tough battle in the current U.S. broadcast marketplace but DRE has been persistent in promoting its digital subcarrier technology as a way for FM broadcasters to expand their digital broadcast capabilities without requiring FCC approval or doing a big reworking of their infrastructure.

But you need receivers. The Aruba FMeXtra Receiver receives both analog FM broadcasts as well as FMeXtra digital programs. Features include SD slot for multiple audio material (such as MPEG3), digital optical output, headphone jack, line in, line out and auxiliary speaker connector for stereo sound.

The company announced at NAB that the receiver is condi-

tional access programmable. It provides graphic display capability with 64x128 resolution; so broadcasters can "visually enhance their radio message."

President & CEO Norman Miller works the booth.

**Shipping:** Now

**Price:** \$199; quantity discounts available

**Design:** Digital Radio Express Inc.

**Contact:** DRE authorized distributors or visit [www.dreinc.com](http://www.dreinc.com)

Total Radio. Guaranteed.



## All Roads Lead To HD Radio BE Puts You AND The CFO In The Driver's Seat!

BE's FMi T Series tube transmitters, with FM + HD Radio power levels from 15 kW to 50 kW, outperform everything in their class.

Our conservative, AC-to-RF output efficiency specs make it easy to calculate how much an FMi T will save you in the long-term.

Proprietary ESP error correction yields unmatched spectral performance. And no other transmitter complies as well with the iBiquity mask - except, of course, BE's FMi solid-state series.

High performance. Fuel efficient. Let BE technology put you ahead of the pack.



Broadcast Electronics, Inc. • 4100 North 24th Street, Quincy, Illinois 62305  
Telephone: (217) 224-9600 • E-Mail: [bdcast@bdcast.com](mailto:bdcast@bdcast.com) • [www.bdcast.com](http://www.bdcast.com)

Broadcast Electronics and the BE logo are registered trademarks of Broadcast Electronics, Inc. HD Radio is a trademark of iBiquity Digital Corporation.

# Contract Engineers Upbeat About Business

*But Lack of Interest in RF Among Young Engineers Is Seen as Cause for Concern*

by Alan Carter

Contract engineers have been and will continue to be a fail-safe component of broadcast radio engineering.

Never mind years of broadcast deregulation and consolidation or the rapid advent of automation from the transmitter site to the studio, all which effectively reduced the need for full-time staff engineers at radio stations and forced some into the field on their own — or out of the industry.

By all accounts, based on interviews with contract engineers across the country in various market sizes, business could not be better. But the profession is not without its share of perils.

One of particular concern cited across the board is a lack of young engineers who are experienced in RF or even interested in the field.

## No doors closed

"There will always be room for the contract engineer," said Jim Dalke, a veteran broadcast contract engineer in the Seattle area.

Dalke, of Dalke Broadcast Services Inc. in Bellevue, Wash., echoed observations of other broadcast contract engineers who said the success of their respective businesses is built around the nuances of the markets in which they work, by sometimes diversifying outside of broadcast but related technology areas, and, of course, keeping up with technology developments.

"We just have to change our work skills as time moves on," Dalke said.

Dalke, now in his 60s, earned his ham radio license when he was 14. He said education is among the factors needed to be successful.

"You have to do that," he said. One of the first technology changes Dalke recalled is the transition from tubes to transistors to solid state. "I saw guys that never made the transition. They just got out of the business."

Another element to success Dalke noted is the entrepreneurial spirit, something he and many other contract engineers exude.

"As a contract engineer, I'm doing today what I dreamed about as a kid," he said. "For me, it is perfect. Absolutely. In particular for me, it is because there are fewer and fewer people in RF."

Dalke is a senior member of the SBE, a Certified Professional Broadcast Engineer and a Certified AM Directional Specialist. He works with small to large radio operations, including Disney AM KKDZ, which is in the process of being converted to AM HD.

"I'm in the middle of it," he said. "It's a challenge, but that's what I like to do."

High on the list of Dalke's concerns is the lack of interest in learning RF by up-and-coming engineers.

## Digital audio, iPods

"Digital audio and the iPods, the kids associate closely with it; but when it comes to RF they are lost," he said.

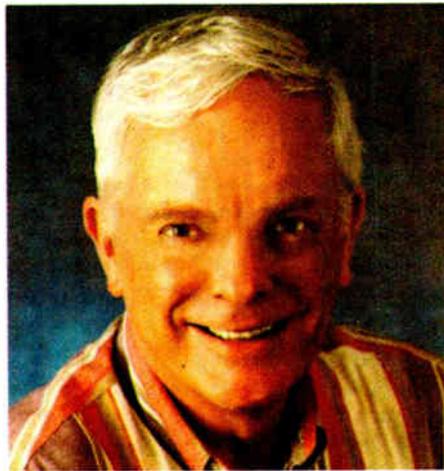
"Every now and then, I'll get a call from a radio station out in the boondocks that is off the air," Dalke said. The transmitter is down or there is some other problem. The owner tells Dalke the engineer working with the station is out of town.

"He'll ask, 'Can you come out to help me?'" Dalke said. "He's almost desperate because there are relatively few contract engineers who have enough knowledge to go into such a situation and bail the guy out."

John Tiedeck, another veteran radio contract engineer, started in engineering in the mid-1970s as a staff engineer at WCOJ(AM) in Coatesville, Pa. He now works in Pennsylvania, Delaware and New Jersey and believes the contract engineering profession will remain steadfast.

Tiedeck, based in Media, Pa., spent some 15 years working for manufacturers including the old Wilkinson transmitter manufacturer, QEI, LPB and Fidelipac before getting back into full-time contracting in 1993. He said it is important for anyone new in contract work to maintain a database of equipment documentation and to buy their own test equipment.

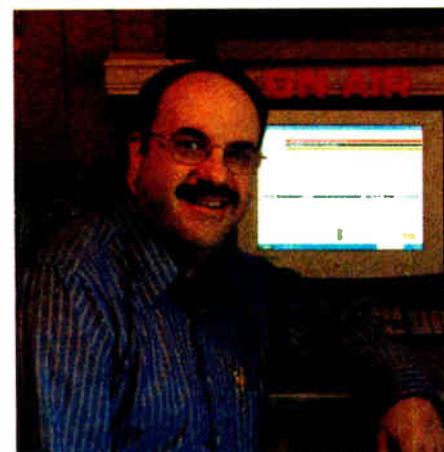
"I think there will always be a need for the contract engineer," Tiedeck said. "There will always be the mom-and-pop station that can't afford and does not need or want a full-time engineer. And the big



Jim Dalke. 'Digital audio and the iPods, the kids associate closely with it; but when it comes to RF they are lost.'



Mac McGaha. 'We went up to the mountain and looked at the FM transmitters ... I said I know what everything is in there; it's just bigger than what I'm used to.'



Bob Perry. 'I was able to take a hobby and actually turn it into a profession which has worked out rather well.'



Matt Lightner. 'I must tell you that I've cleaned up a lot of disasters from unqualified engineers in the past.'

guys do occasionally seek outside help."

Tiedeck keeps busy with a mix of radio operations and a mix of work from transmitters to studio maintenance and build out. While he thinks HD "will eventually trickle down" to mom-and-pop stations, he is doing some HD testing at Clear Channel WILM(AM) in Wilmington, Del.

## Role of HD

HD plays a big role in the business of James Boyd of Boyd Broadcast Technical Service of Tualatin, Ore., near Portland. In addition to radio stations throughout Oregon, Washington and Idaho, he is a contractor for Harris Corp. and does installations and checkouts for the manufacturer.

"I am deeply involved in HD," he said. "I had the opportunity to put Portland's first HD on the air at KGON owned by Entercom. And my work for Harris is mostly HD install and checkout."

Boyd, 60, obtained his amateur radio license when he was 13; he has been a broadcast engineer for 42 years and went full time as a contractor in 1991. He said his current business is the "best time" in his career.

"These are exciting times," he said. "Absolutely. I love it. This is the greatest business to be in — the broadcast profession in general. I've never had a real job in my life," he said jokingly. "This is play. Not only that, we are at the most exciting time in the 42 years that I've been in this business."

Boyd, who holds a Lifetime General Radio License, said he does "a lot" of RF work and "a fair amount" of studio work.

"I don't think contract engineering is going to go away," he said. "And there are fewer people doing it. The work load will likely increase."

For those considering a move into contract engineering, Boyd, too, recommends continuing education and an investment in test equipment, even though the gear can be expensive.

But don't expect to move in on Boyd's turf.

"I don't intend to quit working," he said. "I may slow down, but as long as my health is good, I'll work to the day I drop."

## Contract vs. full time

Mac McGaha is an engineer who chooses contract work over full time.

"I like my business better now than I think I ever have," he said. "There are times when I think I am way too busy, and sometimes I think I am not busy enough. But for the most part, I'm pretty comfortable. You've got to manage it."

McGaha, 61, of Nampa, Idaho, focuses on the southwest part of that state as well as southeast Oregon. He has been in the contract business for 20 years.

"I was a truck driver, and I was getting real tired of the truck companies I was working for going out of business," McGaha said. "I was a ham radio operator, also, and a friend who was a ham who owned a radio station had an engineer who needed some help."

"The first available night, we went up to the mountain and looked at the FM transmitters," McGaha said. "We shut the thing down and looked in the back door. I said 'I know what everything is in there; it's just bigger than what I'm used to.' And I've been doing it every since."

McGaha feels optimistic about his future but expressed concern about the reason: He said he is picking up business because there are fewer contract engineers.

"I'm not seeing new people coming  
See CONTRACT, page 22 ▶



Visit [radioworld.com](http://radioworld.com) for CoolCast video demos of all the 2007 "Cool Stuff" Award-winning products.

MARKET PLACE

## Burk Offers Free Factory Training June 21 or 22

Burk Technology announced dates for its next factory training seminars.

The seminar is one full day and is offered on two dates, June 21 or 22. The company said training is targeted to radio and television broadcast engineers, as well as engineering managers responsible for coordinating transmitter plant operation. Advanced capabilities and "tips and tricks" are covered.

"For example, we'll show how to integrate security camera monitoring into the AutoPilot Plus software, or how to use e-mail alerts with any of the of the remote control systems," stated General Manager Anita Russell. The session includes a discussion of the Watchband Remote AM/FM/RDS receiver, the SL-1 Serial LAN Extender and the AFD-1 Arc and Flame Detector. The Watchband and the AFD-1 earned Radio World "Cool Stuff" Awards this year.

Lunch is provided. For information or to reserve a space call Bonnie Christiansen at (800) 255-8090 or e-mail [bonnie@burk.com](mailto:bonnie@burk.com).



# Harris is your end-to-end radio solution provider.

AM/FM Analog or HD Radio™ • Audio Consoles • Broadcast Studios

High Power AM • Systems and Service • Intraplex Transport

HD Radio™ is a trademark of iBiquity Digital Corporation

Harris PR&E NetWave console with optional networking. Available in 8-16-24 channel frames, all with fully modular construction.



ZX1000, 1 kW tri-mode FM/FM-HD or digital only transmitter. FM transmitters available from 250 W to 70 kW, in analog or HD Radio.



FlexStar HDx exciter—the gold-standard for FM and FM-HD exciters, featuring RTAC (Real Time Adaptive Correction for best mask compliance) and Exgine, the latest iBiquity platform in HD Radio.



Destiny 3DX-50, 50 kW medium wave direct digital drive high efficiency, high reliability AM transmitter. AM transmitters from 1 kW to 2 megawatts, all fully compatible with HD Radio.

## Imagine Harris transmitters... combined with legendary Urban audio processing.



### OPTIMOD 9400-AM Digital

No-compromise, independent, multiband processing for analog AM and digital radio—in one box!

For over 20 years, OPTIMOD-AM has dominated the sound of major-market AM radio. Urban's new 9400 offers even better analog AM processing, while its unified analog and digital design substantially reduces costs compared to a two-box configuration.



www.urban.com

Contact Harris at 800-622-0022 or email [autoconfirm@harris.com](mailto:autoconfirm@harris.com)



assuredcommunications™  
Government Systems • RF Comm • Broadcast • Microwave

www.harris.com

# Contract

► Continued from page 20 into the business," he said. "The interest is mostly in computers."

## No limits for engineers

Bob Perry has been a contract engineer since 1988 and in the business for 30 years since starting at his college radio station. He said the engineering field is wide open, whether a person wants to be a contractor or work for a station.

"It's a good opportunity for anybody interested in electronics and looking for a challenge," he said. "I love what I do. If I didn't, I wouldn't be doing it. I was able to take a hobby and actually turn it into a profession which has worked out rather well."

Perry, 47, whose company is RDP Technical Services of Auburn, Maine, and who holds Certified Broadcast Technologist certification from the SBE, said his markets are good for him because there are a number of small stations that cannot afford a full-time engineer.

He keeps busy with 14 Citadel-owned stations in Maine and New Hampshire. He said he does "a little bit of everything" from studio work to RF; HD uptake is slow.

Because of his concern about the lack of new people getting into broadcast radio engineering, Perry speaks at local high schools drumming up interest. A ham operator himself, he said he sees some hams who want to go beyond the amateur status.

Jeff Rosenberg, 40, who operates Modulation Magic in Newton Highlands, Mass., near Boston, has taken something of a different tactic to handle the ebbs and flow of the radio engineering business.

While he said that HD has been the "mainstay" of his business for the past year, with some large installs and another on the calendar, he has ventured into sound and industrial install business.

"When I'm not busy, I'll go install a telephone system," Rosenberg said. "I'll put in a computer network. I do a lot of sound systems that end up in restaurants and nightclubs. Why not? In order to do turnkey product, I need to do enough volume to make manufacturers happy."

And Rosenberg said being a broadcast engineer gives him a heads-up on other install engineers. Rosenberg, who holds CBNT certification from SBE, is a member of the Audio Engineering Society and is past president of the Boston chapter. He also is a certified integrator for Wheatstone/Audioarts and a certified HD integrator for Broadcast Electronics.

## 'Hooked' on engineering

Rosenberg said he "was hooked" by engineering while attending Curry College in Milton, Mass., in the 1980s where he eventually became the first student station engineer. He credits the late Jim Rakiey, Boston-area engineer, with his "training-by-fire" education in the beginning.

**We are at the most exciting time in the 42 years that I've been in this business.**

— James Boyd

"I started doing contracting gigs right away while I was in college," Rosenberg said. "Anything anybody would pay me to do I would go out and do."

He said he had another full-time job from which he learned how to run a business and did contracting on the side until the part-time work grew into full-time.

For anybody looking to get into full-time contract work, Rosenberg's advice is get business training outside the industry. "I worked retail. I let a corporation pay for my accounting education, my bookkeeping education."

As other contractors have talked about the ups and downs of work, Rosenberg said you have to balance your budget. "You have to plan for the rainy day," he said.

Looking ahead, Rosenberg said the prospects of engineers coming along, especially those in RF, are not too good. He has trouble finding people to work with him, and he is working with a student, one of his two part-time employees.

As for the amount of work to come, he believes that as the big groups develop their stations, there will be more work for remotes and more staff as the business shifts back toward more localism.

Like Rosenberg, Matt Lightner, 30, president of Lightner Electronics in Claysburg, Pa., said diversification is important to avoid the ups and downs in the broadcast business. His company does audio/visual contracting and computer networking to fill in the gaps.

Lightner's career in broadcast engineering started at the age of 15 in 1991 when he fixed some cart machines for a friend who was an announcer at WJSM(AM/FM) in Martinsburg, Pa. At the time Lightner was repairing TVs and VCRs, something he got into when he was 12.

He started contract work in 1995, after working for a year and a half at WPRR/WVAM as chief engineer — a job he earned between his junior and senior years in high school where he studied electronics. Before leaving the station, he led the project to rebuild the studios and transmitter site. Lightner hired his first full-time employee in 1997. Today, he has seven field technicians/installers and two office personnel.

He finds he handles the RF work; he firmly believes that is where new engineers should concentrate.

## RF training needed

"In today's world it is easy to find computer technicians, but RF engineers are extremely hard to find," Lightner said. "I'm amazed with so many technologies moving wireless, how few engineers know RF."

Lightner is preparing to take the Certified Senior Radio Engineer certification SBE exam; he said he let his Certified Broadcast Radio Engineer certification, which he obtained in 1999 at 22, expire.

Like other engineers interviewed for this story, Lightner noted the relaxation of licensing for radio engineers.

"This devalued the engineer and led to a lot of unqualified people taking the title of engineer," he said. "I must tell you that I've cleaned up a lot of disasters from unqualified engineers in the past. I've also seen a few cases where untrained engineers could have been killed working on

high-voltage equipment without proper safety training."

This is where the SBE stepped in with a certification program and the continuing education work of the Ennes Educational Foundation.

Barry Thomas, an SBE executive board member and vice president of radio engineering for Lincoln Financial Media Co., said SBE offers valuable resources and networking opportunities for the radio engineering community. In particular, SBE dedicated a section on its Web site to contract and consulting engineers at [www.sbe.org/res\\_eng.php](http://www.sbe.org/res_eng.php).

Included are a directory, sample contract and information about commercial and professional liability insurance.

The number of contract engineers in the market is hard to calculate. A search on the Web reveals resource lists on various sites. But Thomas said their high membership number in SBE is indicative of their strength and dedication to the profession.

*Contract engineers: What issues are high on your worry list? Write us at [radioworld@imaspub.com](mailto:radioworld@imaspub.com).*

*Alan Carter is the former editor in chief of Radio World International.*

## BUSINESS NEWS

### Audemat-Aztec Moves

Audemat-Aztec has moved to a new location, where it says it will have more room.

Company officials said the Miami office is now at 19595 NE 10th Avenue, Suite A, and is double the size of the previous office.

This will allow Audemat-Aztec to stock more products to handle increasing of sales and for faster deliveries. There will soon be a showroom as well, for client visits and more frequent dealer training.

Executive VP Christophe Poulain said the supplier's goal is to be able to ship orders in a day.

Phone numbers and e-mail addresses remain the same.

## COOL STUFF 2007 AWARD WINNER



**Product:** AlertFM USB  
**Company:** Global Security Systems LLC

GSS has been notable for its efforts to solve modern-day emergency warning problems in a way that also builds on the industry's FM infrastructure.

The AlertFM USB is a portable FM receiver that allows emergency alerts and messages to be viewed on any device with a USB port, such as a laptop or desktop, without the need for an Internet or network connection. AlertFM allows emergency personnel to create and distribute emergency alerts and messages to targeted recipients in geographies or organizations with an AlertFM receiver.

Bob Hearion and Matt Straeb give their product a thumbs up.

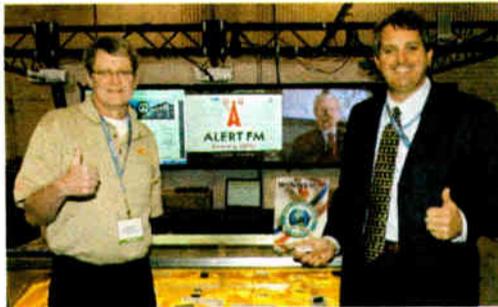


Photo by Jim Peck

**Shipping:** Fall

**Retail price:** \$35

**Design:** GSS Team

**Contact:** Jim Lowery, Global Security Systems, (601) 709-4240 or visit [www.gssnet.us](http://www.gssnet.us)

## COOL STUFF 2007 AWARD WINNER



**Product:** USB-AES Matchbox  
**Company:** Henry Engineering

"Skip the D-to-A converter or the S/PDIF-to-AES interface in addition to your semipro DAW audio interface," the judges wrote. "This little blue box does it all: AES and S/PDIF in and out, built-in D-to-A for monitoring or analog equipment, and a speaker jack too! Bus-powered, so there's no AC adapter to forget when you take it on the road."

The USB-to-AES digital audio interface provides AES/EBU digital audio input and output (stereo) from any PC using USB interconnect. Supports sample rates of 48, 44.1, & 32 kHz, 16-bit depth. Works with any software that supports a USB audio device. AES/EBU digital I/O are transformer-balanced and isolated to prevent ground loops and noise from PC. The box also has S/PDIF digital I/O, secondary balanced analog outputs and speaker output with external mute facility.

Shown: Bill Sacks and Hank Landsberg



Photo by Jim Peck

**Shipping:** June

**Price:** \$495

**Design:** Bill Sacks, Kim Sacks, Hank Landsberg

**Contact:** For info and dealer listing, visit [www.henryeng.com](http://www.henryeng.com) or call (626) 355-3656



# FLASH MEMORY AUDIO PLAYER

# PX10



**EASY TO PREPARE!  
EASY TO OPERATE!  
EASY TO WORK WITH!**

## REVOLUTIONIZE THE WAY YOU WORK!

### FEATURES

- Using convenient USB flash memory drives and Compact Flash cards
- 6 pages with 50 hotkeys each (Maximum 300 clips)
- Instant playback of recorded audio from any of the 50 hotkeys.
- Carry your own favorite clips on your USB or Compact Flash memory cards.
- Suitable for instant playing such as sound effects, jingles, music for radio and television shows and events.
- Drag and drop recording to any of 50 hotkeys.
- Bright Graphical Vacuum Fluorescent Display
- Editing of heads and tails, fade-ins and outs and levels.
- Continuous loop playing
- 44.1 or 48 kHz sampling WAV or MP3 files.
- No moving parts such as cooling fans and hard disks.

PX10 audio hotkey player uses convenient and widely available USB flash drives or Compact Flash cards.

With the PX10 software you can simply drag and drop your favorite audio clips onto any of the 50 hotkeys on the front panel with touch of a finger.

The PX10 features an easy to use interface, right from your PC screen

You can edit heads, tails, fade-ins and outs as well as audio levels of each clip.

Features a bright and clear fluorescent display.

Perfect for any audio effects for radio and television studios, productions, various shows and events.

#### Headquarters:

*Kowa Company, Ltd.*

Electronics & Optics Division  
4-14, Nihonbashi-honcho 3-chome, Chuo-ku, Tokyo, 103-8433 Japan  
Phone: +81(3)3279-7331 Facsimile: +81(3)5225-7516

#### Contact:

*Kowa Optimed, Inc.*

20001 S.Vermont Ave. Torrance, CA 90502. U.S.A.  
Phone: +1-310-327-1913 Facsimile: +1-310-327-4177

URL : <http://www.proaudiokowa.com>  
e-mail: [pxinfo@proaudiokowa.com](mailto:pxinfo@proaudiokowa.com)

Easy to prepare!



Easy to operate!



Easy to work with!

## Next-Gen Features on the Horizon

*Coming: Low-Cost, High-Performance Chips, 'HD Now' and a Push to Smaller Markets*

by Leslie Stimson

Several future capabilities of HD Radio were demoed by Ibiquity Digital vendors on the show floor at NAB2007. These included conditional access, real-time traffic, time shifting, Electronic Program Guide and record and rewind functions.

Ibiquity and its partners are vetting these concepts and hope to commercialize several soon, said Scott Stull, vice president of broadcast business development.

### NDS UNVEILS CONDITIONAL ACCESS DETAILS

Several companies demoed conditional access, the ability to encrypt an HD Radio signal and then permit or deny the receiver the ability to decode the signal.

This would bring a function that is already available in satellite radios to the terrestrial radio realm.

HD Radios will soon be addressable by channel and time of day. Ibiquity executives said NDS conditional access technology will be built into all new HD Radios starting in the fourth quarter of this year. Developer NDS received a Radio World "Cool Stuff" Award for the concept (see page 36). NDS also announced planned pricing of its equipment.

NDS showed its RadioGuard system. Director of U.S. Data Applications Delivery for RadioGuard Tom Rucktenwald told attendees of a multicasting panel, "We're only talking about encrypting the multicast channel. The main HD-R channel would always be free."

At the show, NDS revealed that it would oversee a national receiver database needed for receiver entitlements. Each HD Radio would carry a unique ID number.

The "HD Radio Global Service Registry" would be handled by NDS Israel, along with encryption and decryption.

The registry would be available to broadcasters and service providers, said Jordan Scott, director of advanced application services for Ibiquity.

NDA Americas would be responsible for entitlement, serialization and customer support testing.

If someone tries to access an encrypted channel, the receiver display would state "service not authorized" and the user would see a call to action, such as

the Web site address of the station, to find out more.

Prototype NDS equipment and modified receivers were displayed. Ibiquity needs to add a security chip to its reference design to handle the encryption/decryption capabilities; that chip is being finalized. The technology developer estimates initially 2 million receivers with conditional access capability will be produced.

Ibiquity will handle integration of the NDS technology to its IBOC system, as well as software updates for the Importer. This is important because both pieces of the NDS conditional access equipment — the Protector and the Initiator — are installed ahead of the HD Radio Importer

in the air chain.

The Protector encrypts the signal; NDS is choosing between two possible Protector hardware manufacturers, Rucktenwald said. The Protector is collocated with the Importer and mates to the Importer and the Initiator. The latter is a server that acts as an administrative control unit. NDS has chosen an HP server for the Initiator.

Every station needs at least a Protector to scramble its signal. Stand-alone stations need both units; a group owner may choose to have one Initiator at headquarters controlling Protectors at each station.

NDS costs revealed at the show were \$10,000 for a Protector and \$15,000 for each Initiator. NDS would charge a connection fee of \$5,000 for the second station and beyond in cases where the Initiator controls several Protectors.

One attendee asked Rucktenwald whether a station that starts providing subscriptions to multicast channels would incur a lot of overhead to service its accounts. He replied that NDS is "talking to groups that can provide back office support. The answer for a station that wants to do this is preparation."

### ... AND SEEKS MORE STATION TEST BEDS

Harris, Ibiquity Digital and NDS say conditional access tests at NPR affiliate WUSF(FM) in Tampa show the technology can work.

Through May, WUSF was testing the system on its HD2 news channel, and the International Association of Audio Information Services provided a radio reading service for a temporary HD3 channel.

This pilot test of how well the NDS system worked with the transmission and reception of an HD-R signal went well, proponents said, though "minor" problems were found. Participants declined to detail those.

See HD RADIO, page 26 ▶



Tom Rucktenwald of NDS, right, talks with Jeff Zigler (left) and Dick Wooden of Clear Channel's Technology Development division. Behind him are the two demonstration pods showing the prototype NDS equipment integrated with equipment from BE (on WBEI) at left and Harris (on WHRS) at right.

## Affordable precision Monitoring and Alarms for your AM, FM and HD Radio broadcasts



### M4.2R Features

- AM and FM — Analog, HD Radio and all HD-2 through HD-8 Multicasts
- 6 assignable Relay Contact Closures for Loss of Audio, Carrier, HD, Multicast, PAD Data and RBDS Data
- Remote Control and Logging of HD Radio™ signal attributes as well as PAD and RBDS data; alarms via E-mail
- Full-time Analog and Digital outputs
- Superb audio quality for precise audio evaluation
- Multipath and Signal Strength indications
- Peak plus Left & Right Audio "Signal Present" indicators

DaySequerra  
www.daysequerra.com

DaySequerra • 154 Cooper Road, Building 902 • West Berlin, NJ 08091 • Phone 856-719-9900 • ©2007 ATI Group Inc.



# More Power to You

Putting our ESP™ error correction technology to work for you, BE's FMi Series solid state FM+HD Radio transmitters now offer increased maximum power output. And you can combine FTi T Series tube transmitters to achieve up to 50 kW of FM+HD power. Greater efficiency, unsurpassed spectral performance and more bang for your buck.

**That's Total Radio. Guaranteed.**



Broadcast Electronics Inc  
Tel: (217) 224-9600  
www.bdcast.com  
bdcast@bdcast.com

Sponsored by Broadcast Electronics

## Radio World's HD Radio™ Scoreboard

*The HD Radio Scoreboard is compiled by Radio World using information supplied by iBiquity Digital Corp., the HD Digital Radio Alliance and other sources. Data reflect best information as of early May. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.*

### AM HD RADIO IN CALIFORNIA

Market	Freq.	Station	Format	Licensee
Los Angeles	570	KLAC	Sports	Clear Channel Radio
Fresno	580	KMJ	Nws/Tlk/Spt	Peak Broadcasting
San Diego	600	KOGO	Tlk/Nws/Spt	Clear Channel Radio
Los Angeles	710	KSPN	Sports	ABC Radio
Los Angeles	740	KBRT	Chrst/Talk	Crawford Broadcasting Company
Modesto	770	KCBC	Christian	Crawford Broadcasting Company
Los Angeles	790	KABC	Talk	ABC Radio
San Francisco	810	KGO	News/Talk	ABC Radio
Los Angeles	830	KLAA	Spn/Tlk/Spt	Radiovisa
Modesto	840	KMPH	AdStd/Talk	Pappas Radio
San Francisco	910	KNEW	Talk	Clear Channel Radio
San Francisco	960	KQKE	Talk	Clear Channel Radio
Modesto	970	KESP	Sports	Citadel
Los Angeles	980	KFWB	News	CBS
Los Angeles	1020	KTNQ	Spn/Nws/Tlk	Univision Radio
San Francisco	1050	KTCT	Sports	Cumulus Media Partners
Los Angeles	1070	KNX	News	CBS Radio
Los Angeles	1110	KDIS	Children	ABC Radio
San Jose	1170	KLOK	Spn/Tlk/Spt	Univision Radio
Stockton	1280	KWSX	Christian	Clear Channel Radio
Riverside-San Bern.	1440	KDIF	Mexcn/Oldes	Clear Channel Radio
Sacramento	1470	KIID	Folk	ABC Radio
Stockton	1570	KCVR	Span/RhyBl	Entravision

The HD Radio Bottom Line  
Total Licensed      On the Air

1,853

1,261

Last Month

Total Licensed

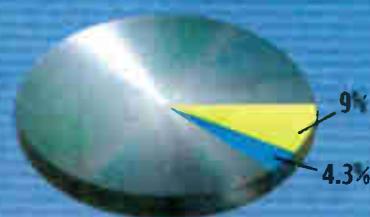
On the Air

1,791

1,236

Market Penetration  
United States

13,837 AM & FM Stations  
(excludes LPFMs)



Number of  
FM Stations  
Multicasting:

597

Last Month:

565

# HD Radio

► Continued from page 24

Problems were being addressed and more demos scheduled at WUSF, said Rucktenwald. NDS is also looking for stations in other markets to test conditional access and hopes to launch its service in 25 broadcast markets in Q4.

One issue he acknowledged: an "ugly and incomplete" RadioGuard user interface.

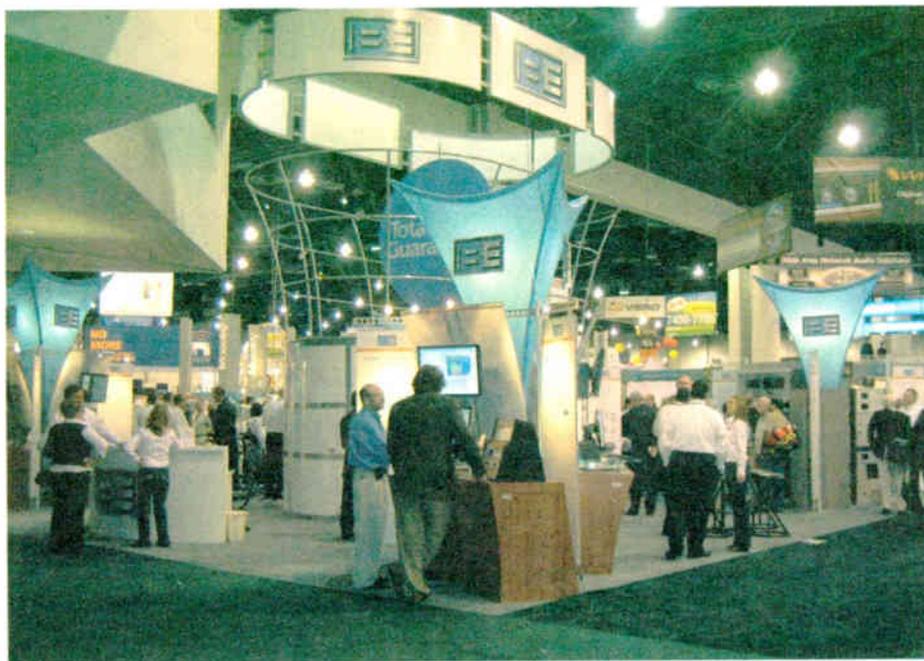
Information about the tests was available in the Harris booth as part of its conditional access display. NPR Labs was an observer of the WUSF tests and plans to bench-test RadioGuard.

NPR Labs staff were in the Harris booth with a presentation called "NPR Labs: Building the Future of Radio." Representatives discussed available radio grants and tied into the Harris DATAplus demonstration with a continuous PAD output loop from DATAplus.

## RADIOGUARD TO DELIVER DATA AS WELL

Broadcast Electronics, NDS and Ibiqity showcased HD Radio conditional access capabilities with a demo integrating conditional access into BE's HD Radio IDi 20 Importer unit, broadcasting program content addressable to permitted receivers.

The companies planned to explore RadioGuard's ability to deliver data services in field trials at Emmis station



Broadcast Electronics, NDS and Ibiqity showcased HD Radio conditional access capabilities with a demo integrating conditional access into BE's HD Radio IDi 20 Importer unit, broadcasting program content addressable to permitted receivers.

WKQX(FM) in Chicago in late May.

BE Vice President of Studio Systems Ray Miklius said Navteq would provide Chicago-area data to be streamed with the HD Radio signal, interpreted by a navigation system and then mapped onto a display.

"On the HD Radio Importer, you provision audio channels and data pipes. We will provision a data service ... and allocate some bit rate (for the traffic data) within the extended hybrid mode."

## VOICEAGE, NEURAL COMBINE EFFORTS ON CODEC

Applications such as pay-per-listen services enabled by conditional access require integration of a very low bit rate audio coder into the HD Radio system. Neural Audio showed the VoiceAge low bit rate audio coder with integrated Neural pre-processing.

The VoiceAge codec now operates at rates as low as 6 kilobits per second,

according to Louis Pare, director of product management. The VoiceAge codec previously operated at 12 kbps. The unit allows stations to offer more voice channels among their multicast offerings such as traffic, weather, radio reading service, a finance channel or Hispanic radio service, according to Neural and VoiceAge.

## SIPORT UNVEILS 100 MILLIWATT HD-R CHIP

SiPort displayed a 100 milliwatt HD Radio chip at NAB2007.

The Ibiqity-certified chip would enable HD-R reception in portable devices, such as radios and cell phones. It has been Taiwanese development for two years; production in initial quantities is targeted for Q3 of this year.

Proponents predict HD-R portables to debut in the first or second quarter of 2008.

Samsung subsequently announced its intention to release a low-power, high-performance HD-R chip in a similar timeframe.

## EPG SEEN AS ENTRY INTO ADVANCED HD-R FEATURES

Britain is further along than the United States when it comes to extra features of digital radio such as Electronic Program Guides.

Matthew Honey, managing director of Unique Interactive, which provides the

See HD RADIO, page 27 ►

## AM HD TRIPLEXED DIRECTIONAL ANTENNA SYSTEM

BOSTON, MA

## KINTRONIC LABS DELIVERS UNPARALLELED QUALITY!

WKOX 50kW/10kW DA-2, 1200kHz - CLEAR CHANNEL COMMUNICATIONS  
WRCA 25kW/17kW DA-2, 1330kHz - BEASLEY BROADCASTING  
WUNR 20kW DA-1, 1600kHz - CHAMPION BROADCASTING

## TOWER TRIPLEXED, MATCHING AND TRAP-FILTER UNITS



MODULAR CABINET DESIGN FOR EASE OF INSTALLATION



USER-FRIENDLY FEATURES TO SIMPLIFY SERVICEABILITY & MAINTENANCE

**Kintronic**  **Labs, Inc**

Telephone : (423) 878-3141 Fax: (423) 878-4224 Email: [kti@kintronic.com](mailto:kti@kintronic.com) Web Site: [www.kintronic.com](http://www.kintronic.com)

# HD Radio

► Continued from page 26  
data features for the Eureka-147 system in the United Kingdom, said, "EPG keeps listeners listening longer."

Scott said EPG is designed to be programmed up to 14 days in advance, for applications such as helping consumers set program reminders for upcoming services. "With EPG, it's all about ease of use. How will listeners use your content."

Ibiquity assisted Harris and BE with demos of an electronic programming guide for HD Radio. The EPGs resembled the electronic program listings common on digital cable and satellite TV systems.

Harris said the HD Radio electronic programming guide display — which is intended to list program titles, start/end times, and key program information for each IBOC station in the market — is designed to be accessible from the consumer's HD Radio receiver.

BE's EPG demo featured program schedules of 20 HD-R channels in the Las Vegas market. A receiver platform with touch-screen interface displayed station names, frequencies and HD channels, and advanced through EPG schedules by station or by time.

The interactive display lays the foundation for store-and-replay, setting program reminders or opt-in access and other advanced HD Radio features, proponents said.

Honey said digital stations in Britain have begun charging clients for text message displays on receivers. Stations also sell "DABverts," he said.

"KISS(FM) in London makes money when listeners send text messages into the station on their phones."

## ADVANCED FEATURES LIKE 'HD NOW' AHEAD

Next-gen features that IBOC proponents say are coming include TiVo-like ability to pre-time a recording for later playback. Ibiquity is calling it "HD Now," said Jeff Detweiler, director of broadcast business development for Ibiquity.

Ibiquity is planning to release new software loads for the HD-R importer and exciter this summer. Part of the importer upgrade will support conditional access and enable an additional level of error correction, Detweiler said.

Coming later this year: a HD Radio real-time traffic service that provides incident, flow and traffic information; mobile delivery of large files to on-based HD Radio-based navigation systems from TeleAtlas and Navteq; and mobile delivery of local/regional points of interest file. Proponents call the latter an opportunity for database and service providers such as a Yahoo-sponsored links. Clear Channel is interested in this concept, said Ibiquity representatives.

## HD-R FOR SMALL GROUPS

Now that some 1,500 stations — mostly in large and medium markets — are broadcasting an HD Radio signal and another 1,500 reportedly are committed to converting, Ibiquity Digital is making

See HD RADIO, page 32 ►

## COOL STUFF 2007 AWARD WINNER



**Product:** BandScanner, Model 512  
**Company:** Inovonics Inc.

This is a "Cool Concept" winner, because Inovonics was at the show asking for user input, not selling it yet.

Powered by the USB port of any Windows PC, the FM scanning receiver generates a graph showing RF level vs. frequency for every station in the market and a station list in tabular form.

The BandScanner may be tuned manually through the "dashboard" screen or by double-clicking a point on the spectrum plot or an entry on the station list. Spectrum plots may be saved on the computer as JPG or BMP files. Raw RDS data are displayed as received, the data groups being trans-

mitted are identified, and all data may be expanded for detailed analysis or logged for subsequent study.

Shown: Todor Ivanov and Jim Wood.

**Shipping:** TBD  
**Price:** \$450-\$500  
**Design:** Inovonics Inc.  
**Contact:** [info@inovon.com](mailto:info@inovon.com) or visit [www.inovon.com](http://www.inovon.com)

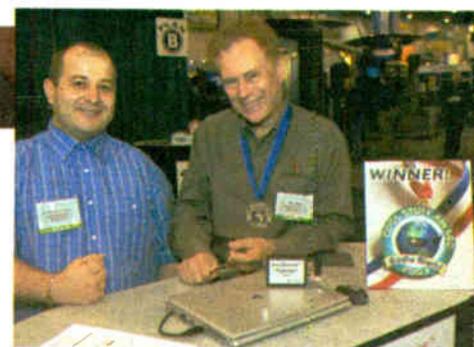


Photo by Jim Peck

# the professional broadcaster's choice for IP STLs

## WorldCast Eclipse



**At last! An IP audio codec that offers a reliable, DSP-based platform and automatic back-up for 24/7 reliability.**

APT's WorldCast Eclipse is the ultimate in flexibility and choice offering IP, X.21/V.35 and ISDN interfaces and a selection of popular coding algorithms including Enhanced apt-X, MPEG Layer 2/3, MPEG 4 AAC, G.711 and G.722

All the features you expect from a professional broadcast codec are supplied as standard: analog and AES/EBU I/Os, adjustable silence detection, alarm ports, contact closures, speed dials, embedded auxiliary data and many more...

Configuration and control of the WorldCast Eclipse is straight-forward and simple thanks to APT's powerful and intuitive Codec Management System (CMS). Offering extensive real-time management of multiple codec units, the CMS enables alarm monitoring, logging and performance monitoring as well as configurable user and audio profiles.

To see the full functionality of CMS, download a trial version from [www.aptx.com](http://www.aptx.com).



Also Available:



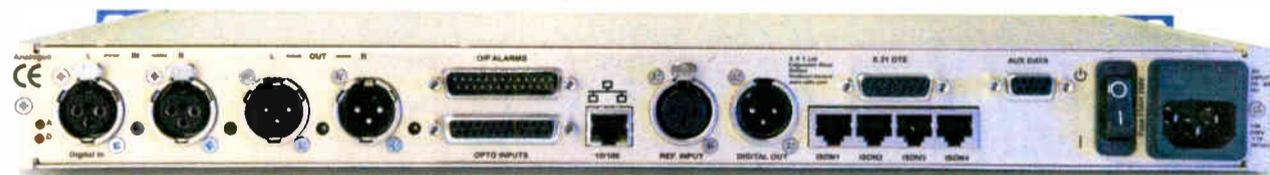
**WorldCast Horizon**  
Bidirectional stereo audio codec offering Enhanced apt-X over IP



**WorldCast Meridian**  
Multi-algorithm audio codec with both IP & X.21/V.35 interfaces



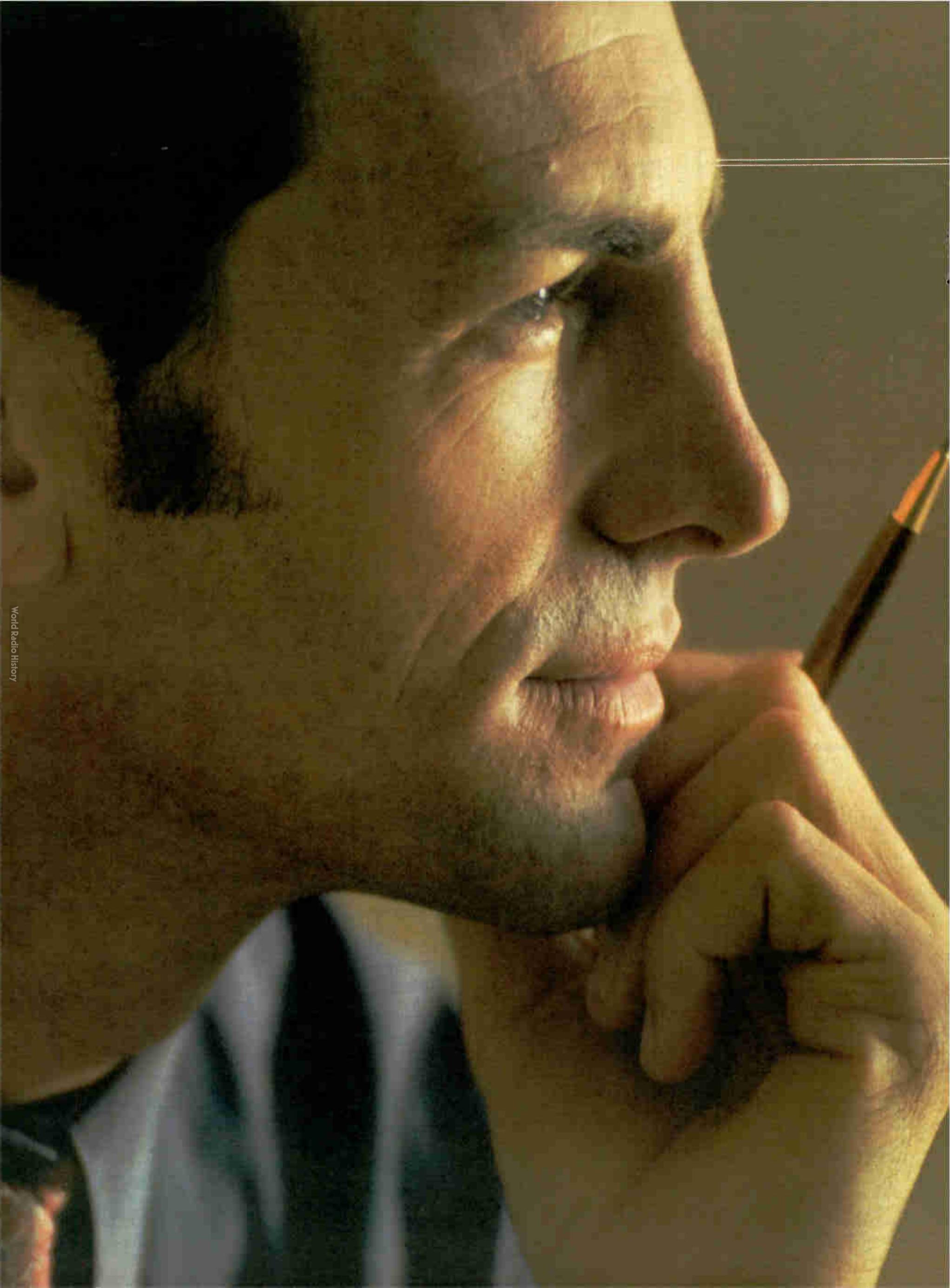
**WorldNet Oslo**  
Professional, Modular Audio Multiplexing Platform offering up to 14 stereo channels over T1/ E1 or IP links with Enhanced apt-X or linear audio. Built-in redundancy, automatic back-up and hot-swappable cards ensure round the clock reliability for multi-channel STLs.



APT Headquarters  
Tel: +44 (0)28 9037 1110  
Email: [info@aptx.com](mailto:info@aptx.com)

APT North America  
Toll Free: 800 955 APTX  
Boston Tel: 781 810 2260  
Florida Tel: 772 340 0850  
Email: [sales@aptx.com](mailto:sales@aptx.com)





1.818.840.6749

www.sasaudio.com



Talk is, as they say, cheap. But when a customer like you has something to say, we sit up and pay close attention. To us, that conversation is golden, a precious commodity.

We know every station, facility and operation is different. So we watch how your staff operates, sit in on the morning shows, work with your engineers and architects. Then we design, build and program your facility with technology appropriate to meet your unique needs and expectations.

## The conversation goes like this: You talk. We listen.

From digital routers to console control surfaces, intercommunications to systems integration, SAS provides comprehensive and competitive broadcast engineering solutions. Solutions that are smart, dependable and expandable for all broadcasters—large and small.

Your straight-talk (yeah, both the kudos and the gripes) is the very inspiration behind the innovation of our designs, and the quality of our customer service. For 20 years our unsurpassed, "we got yer back" commitment to client support, and our ever-improving and evolving technologies have delivered to this industry the highest standards of integrity, experience and reliability.



The **Rubicon™** family of digital control surfaces—the favorite of hundreds of major and medium market radio programmers.

So whaddya say? Call us. We're all ears.



**SIERRA  
AUTOMATED  
SYSTEMS**

20 years of listening. 20 years of innovation.

### Look who's talking now.

ABC Air America Bonneville Clear Channel CBS Disney ESPN Moody NPR Palomares Radio One Spanish Broadcasting System Westwood One and more than 1000 major market and smaller radio broadcasters across the country and abroad depend on SAS expertise. Shouldn't you?

# DMHD-1000 Is an 'Add-On' Tuner

*Directed Electronics Drives Into The Car HD Radio Market*

by Aaron Read

The recent "broadcaster's buy" from Ibiquity Digital included a new offering to the HD Radio tuner market: the Directed Electronics DMHD-1000 "car connect" radio.

It's an "add on" tuner designed to work with your existing car radio. Overall I'd say it's a mixed bag: It has some good things, and it has some not-so-good things.

First a description of the radio: the actual tuner/converter box is about the size of a small paperback book, meant to be hidden behind the dash or under a seat. A small, wired, display/control unit is barely bigger than the mostly redundant remote control that also comes with the unit.

Rounding out the package are a wiring harness for power with nice, long wires, some extra fuses, the equipment manual and two RF jumper cables with Motorola plugs so you can install the tuner in line with your existing antenna. The latter is especially nice as it avoids the growing problem of Part 15 transmitters (for iPods and whatnot) causing interference to licensed stations.

The user interface is pretty good. There's not much "hidden" in the menus;



based on my listening tests.

My greatest challenge (if I chose to accept it) with this review is that I live in the city, so I don't own a car. I had to borrow a friend's car, install the DMHD, drive around listening for the day, and uninstall it ... leaving no trace. Ten years ago, the wiring on many car radios would've made this impossible, but today it was no sweat.

The test vehicle was a 2006 Ford Escape SUV that, by chance, also had a similar-styled XM satellite radio tuner. A little struggling with a DIN tool popped out the factory radio, the in-line RF modulator installed in less than a minute, and I jury-rigged the three power wires to a cigarette lighter adapter. In less than 30 minutes I was on the road.

Downtown Boston is notorious for

and preset bank.

The rest of the display can be cycled through several modes by the DISP button, and exactly what gets shown depends heavily on what the station is transmitting, in either HD-R or RBDS. The display can be call letters, frequency, a slogan, artist/title, etc.

If no PSD, or more generic Program Associated Data is available, the radio defaults to some combination of call letters and/or the frequency. Overall, I found most every mode was useful. A nice touch is the HD-R "program guide" mode that shows the current artist/title for all the multicast channels at the same time.

## Isn't it supposed to sound better?

However, I have one big criticism of PAD on this radio. With RBDS, but not HD-R, whenever the PS field cycles/refreshes to the next item to display, it resets the Radio Text field's scrolling to the beginning. This means much of the RT field may never get displayed.

Another big gripe immediately appeared when I tried to use the RCA line-level outputs: serious distortion! It sounded badly over-driven, although it became somewhat better as the tuning unit got warmer.

multipath, intermediate-frequency and blanketing interference. As expected, the HD Radio signal really shone here; as soon as HD blended in, all the pops, hiss and clicks just disappeared. The XM sat radio's RF modulator also co-existed nicely with the DMHD.

I did notice that for HD-R listening, the radio isn't quite as sensitive as I'd prefer, but it's not bad. Large FM stations were no trouble, but smaller Class A FM stations have inherently low HD wattages, and they seem more susceptible to being "lost in the noise floor" on this radio.

## Eyes on the road

Analog reception was acceptable; there weren't any places where the Escape's OEM radio was getting noticeably better FM reception than the DMHD. AM listening is tougher since we only have three stations transmitting HD-R in Boston, but the DMHD didn't seem to have any particular trouble acquiring a digital signal from any of them.

All in all, I wouldn't consider it "dynamite" radio for reception, but it's far from "deaf." Your average listener shouldn't notice a significant difference in reception between the DMHD and most OEM car radios, nor with your average HD Radio car tuner.

DMHD handles HD Radio Program Service Data quite well; the display is not large, but the design and layout of the text makes the most of it. The "status bar" along the bottom edge will always contain critical info. such as call letters

## Product Capsule:

**Directed Electronics  
DMHD-1000 Tuner**

### Thumbs Up

- ✓ Small, well-designed control unit
- ✓ Decent signal sensitivity
- ✓ In-line RF modulator (instead of free-radiating)
- ✓ Easy installation

### Thumbs Down

- ✓ RCA outputs sound terrible unless grounded ...
- ✓ ... and manual doesn't mention it
- ✓ RDS doesn't display properly
- ✓ Tuning unit gets quite hot

MSRP: \$200

CONTACT: Visit mobile audio portion of the Products section at [www.directed.com](http://www.directed.com)

A second and third DMHD proved to have the same problem. A call to Directed's tech support said I just return it for an exchange, but a colleague at Ibiquity Digital told me the solution he stumbled across: you have to ground the tuning unit's chassis. This is in addition to the ground wire on the power connector.

I suspect many people will never even notice, since they'll bolt the tuning unit to something metal behind the dash. But there's no specific mention of this in the manual, and if you don't ground it — the sound is inexplicably awful on the RCA outputs.

## Conclusions

It's hard to get around the problems with the RCA outputs; and the lack of documentation, or viable tech support about it, is disappointing. This is something I can see the average user immediately demanding a refund for their "broken" radio.

See DIRECTED, page 32 ▶

**Overall I'd say it's a mixed bag: It has some good things, and it has some not-so-good things.**

most every function has a button you can find by touch. The radio has five preset buttons but uses a "bank" button to cycle through four rounds of presets, for twenty total.

The display is a black LCD characters with an amber backlight. The dimmer and contrast settings are good — you can run the dimmer from very bright (suitable for daylight) to very dim, or even off. Contrast is flexible enough to handle most any viewing angle.

Like any good engineer, I like to see how intuitive the design is by working without reading the manual. I found I didn't need to check it for anything; the installation was pretty intuitive, save for one big exception I'll come back to. After my tests, I browsed through the manual and found it to be reasonably well written.

The last page had a ton of interesting, albeit, somewhat cryptic, specifications, such as "1st adjacent rejection" (SNR=60dB at D/U = -25dB) and "post-detection bandwidth" for DBB (Adjustable from 8 kHz down to 3.5 kHz). See my blog [www.friedbagels.com/blog](http://www.friedbagels.com/blog) for the full list of specs. Finally, there's no visual indication of it, but the DMHD does seem to decode C-Quam AM stereo

## COOL STUFF 2007 AWARD WINNER



**Product:** Daptor Three Wireless Audio Interface  
**Company:** JK Audio Inc.

Radio engineers have a soft spot for problem-solvers; our judges are no exception. JK Audio keeps cranking out such solutions.

Also, as one judge wrote, "Anything Bluetooth is always cool."

Daptor Three is a simple, professional audio interface. Like its predecessor Daptor Two, this version allows balanced and unbalanced connections to your cell phone. While Daptor Two uses the 2.5mm headset jack, Daptor Three connects to the phone like any other Bluetooth Wireless Technology enabled headset. The "hands-free" mode offers a mono telephone-bandwidth connection.

Daptor Three also will connect to any other product, such as a notebook or portable, that allows a stereo wireless headset connection. The stereo headset mode offers full audio bandwidth.

Uses include patching into your cell phone for a quick remote or interview, or mixing in audio from your notebook or portable.

Joe and Linda Klinger are shown.

**Shipping:** August

**Price:** \$415

**Design:** JK Audio Design Team

**Contact:** Visit [www.jkaudio.com](http://www.jkaudio.com), e-mail [info@jkaudio.com](mailto:info@jkaudio.com) or call (800) 552-8346

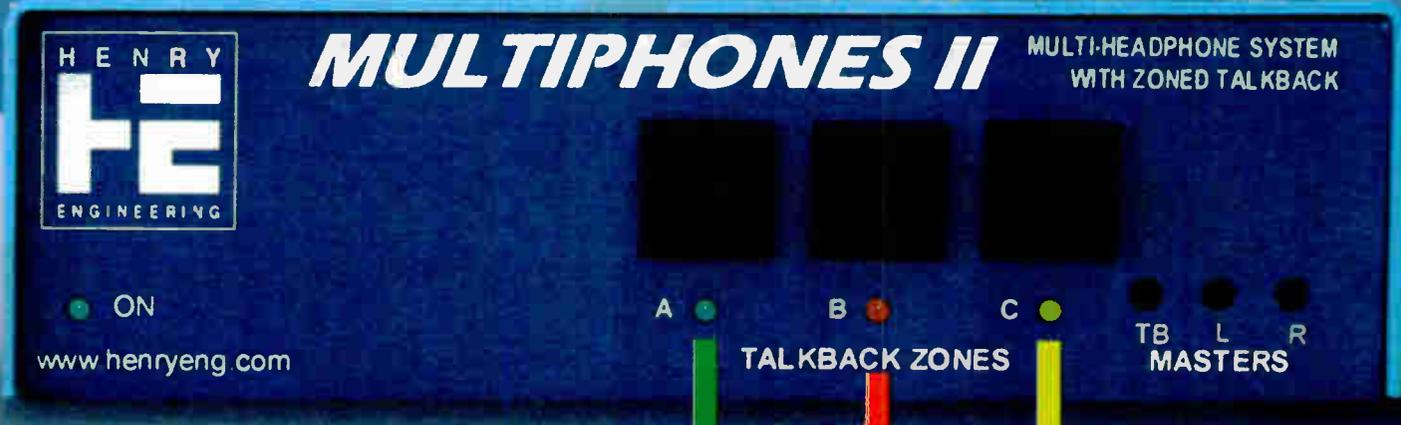


Photo by Jim Peck



Visit [radioworld.com](http://radioworld.com) for CoolCast video demos of all the 2007 "Cool Stuff" Award-winning products.

# Get "In The (Talkback) Zone"!



*Use up to 12 Guest Pods in any combination*

The new **MultiPhones II** multi-user headphones system now has **Zoned Talkback!**

Use separate Guest Pod **Talkback Zones** for Host, A-Guests, and B-Guests. Talk to each group without bothering the others!

- Easy upgrade for existing systems
- Simple "daisy chain" installation
- Uses cat5 cabling

Get MORE MultiPhones for LESS cash! The new lower price is just \$250\*. In stock at all Henry Engineering dealers.

For complete details 626.355.3656 or visit [www.henryeng.com](http://www.henryeng.com)

**We Build Solutions**

\*Price is for MultiPhones II Master unit; Guest Pods sold separately.



# Directed

► Continued from page 30

The strange behavior of PAD from RDS was also minor, but annoying and highly visible. And the tuning unit gets quite warm, although at least the documentation warns about this.

In addition, with an MSRP of \$200 the DMHD1000 unfortunately has come out right at the same time Wal-Mart announced that it's selling the JVC KD-HDW10 car radio for \$190. Of course, the JVC is a replacement radio; if you want to keep your existing car radio, the DMHD might be a good pick.

A Directed Electronics spokesman told RW in May that the company is working to correct the issues identified in this review.

Aaron Read is a staff engineer with Broadcast Signal Lab, technical director for public radio and a self-described jack of all trades. Additional specifications and pictures of the DMHD-1000 can be found at [www.friedbagels.com/blog](http://www.friedbagels.com/blog). Thanks to David Maxson and Lew Collins of Broadcast Signal Lab for their assistance. 

## OMB

### FM TRANSMITTERS

All transmitter powers with the best quality price ratio

#### NEW EM 5000 S

- Solid-state FM 5 kW transmitter.
- Improved design with three independent 2 kW power amplifiers, exciter and control unit in one 19" rack cabinet.
- Redundant design.
- Record in memory of events and alarms.
- Programmable automatic power control as energy saving feature.
- Fold back SWR protection system.

OMB, the Future of Communication

www.omb.com

#### MT/MR PLATINUM

- Studio to transmitter link system.
- Link transmitter with 20 W power output.
- Available in frequencies from 200 to 960 MHz supplied in 20 MHz bands.
- High stability oscillator.
- LCD screen display for parameter selection and readings as follows:
  - frequency (6 digits).
  - forward / reflected power.
  - modulation level.
  - pilot signal (19 KHz) sampling while in transmission.



- Audio inputs: mono balanced, stereo (MPX), and 3 SCA.
- Fold back SWR protection.

#### OMB AMERICA

telephone (305) 477-0973  
(305) 477-0974  
fax (305) 477-0611  
3100 NW 72nd Ave, Unit 112  
MIAMI, Florida 33122 USA  
<http://www.omb.com>  
usa@omb.com

#### OMB EUROPA

sales and customer service telephone 976-504 696  
fax 976-463 170  
factory telephone 976-503 580  
fax 976-503 855  
Avda. San Antonio, 41  
CUARTE DE HUERVA  
50410 Zaragoza, ESPAÑA  
<http://www.omb.es>  
europa@omb.com

# HD Radio

► Continued from page 27

an effort to reach the owners of some 5,000 small-market stations.

In the session "Building an HD Station I: From Studio to Antenna to the Bank," several broadcast engineers who have converted stations gave attendees detailed information on the necessary licenses, equipment needs and budget/finance tips for their conversions.

There are several ways to implement HD Radio at a station, with varying cost levels.

For stations with limited funds, it may be easier to go IBOC in steps, said Bert Goldman of Goldman Engineering Management, Dallas. Those could include adding RDS to the analog signal, upgrading the STL to the transmitter, then eventually adding HD-R to the primary signal.

David Maxson, managing partner of Broadcast Signal Lab, Medfield, Mass., said a strategic reason

**It isn't 'Let's promote for two years and we're done.'**

— Bob Struble, Ibiquity

to convert now is that "it's easier and less risky to start simply and grow than to try to do it all at once later." Get HD-R on the air, then data, and have your station personnel explore the possibilities, he recommended.

Session facilitator Ron Davis is president/general manager of KBOW(AM)/KOPR(FM), Butte, Mont. Davis also chairs the Small Market Operators Caucus. He said Ibiquity's February announcement of a change in its broadcast licensing fees would benefit small-market owners especially.

To clear up confusion about what Ibiquity announced, Scott Stull, vice president of broadcast business development said the company is offering groups, including stand-alone facilities, a conversion incentive through Sept. 30. Ibiquity would cap the one-time licensee fees at \$10,000 per station for all the stations in such a group that qualify for the incentive.

One small-market operator in attendance said Ibiquity had never contacted him about converting to HD Radio. Stull said that's why the company is building a sales staff including the recent hiring of Paul Dadian.

In an interview, Ibiquity President/CEO Robert Struble told RW the company is pleased with the progress of the rollout on several fronts, but is mindful that Ibiquity and broadcasters need to keep improving in some areas in order to get more HD Radios sold.

Among Struble's goals for improvement are programming multicast channels and time-aligning the analog and digital signals.

"Not a lot of HD2s have jocks, so a lot of that is done through automation. The programming's got to get better over time and we know that. We think it will get better over time and you'll get more people listening. Certainly what's on now will wet" the public's appetite for digital, he said.

The time alignment situation is improving; he said; Struble notes more stations are addressing that now than six months ago.

Also, if a station lets its multicasting go off the air without a backup for a while, "That's hurtful ...

because people are listening and they get impressions" of HD Radio based on that. "It reflects the reality of where the rollout is and, as an industry, we have to improve it over time."

The initial two-year mandate of the HD Digital Radio Alliance expires at the end of 2007. It's not clear yet whether the alliance will extend or modify its mission or disband.

Asked whether Ibiquity still needs the marketing focus of the alliance, Struble hinted at yes. Regardless of what happens to the alliance, the need for stations to promote HD Radio doesn't go away, he said. "We think broadcasters understand that. (Industry) needs to. We're not there yet."

Noting that iPod commercials and sat radio commercials continue to air, Struble said IBOC is about the future of radio. "It isn't 'Let's promote for two years and we're done.' It doesn't work that way."

Ibiquity had approximately 15 receivers on display in its suite; Struble said there are some 50 HD Radio models available now. Asked how many have been sold, he said "in the low hundreds of thousands."

Why is that figure fuzzy? While receiver manu- See DIRECTED, page 33 ►

## COOL STUFF 2007 AWARD WINNER



**Product:** PX-10  
**Company:** Kowa Company, Ltd.

The PX-10 is an audio hotkey player that can play audio clips at the touch of a button.

By using either a USB or compact Flash card to store up to 2 GB of audio clips, the PX-10 eliminates the burden of a hard drive. Use the included software program to set up play lists on a PC, save them on a USB drive or Flash card and plug it into the PX-10. Then you have the luxury of controlling six pages of 50 instant playback keys with programmable and real-time effects such as faders and volume control. This approach lets radio broadcast users share the same PX-10 yet use their own personalized playlists.



**Shipping:** August

**Price:** \$3,500

**Design:** Mamoru Ueda

**Contact:** Kowa Optimed (800) 966-5692 or e-mail [pxinfo@proaudiokowa.com](mailto:pxinfo@proaudiokowa.com)

# HD Radio

► Continued from page 32

facturers eventually report HD-R sales to Ibiqity, under their license agreements, there is a time lag, Struble said. He declined to specify the length of that lag and how often each company is reporting its sales figures. All that is determined by each license agreement, he said.

The company is pleased with where conditional access is technically. That's important because conditional access is an enabling technology for other next-gen services, Struble said.

## DRB CERTIFICATION

The SBE has created a Digital Radio Broadcast Specialist certification following the FCC's "recognizing the viability of digital radio and the official endorsement of multicasting," stated the engineering group in its announcement.

The certification will qualify knowledge of digital radio including audio processing, STLs and transmission of multichannel digital program streams. Applicants must hold SBE certification at the Broadcast Engineer, Senior Broadcast Engineer or Professional Broadcast Engineer certification level. The DRB certification will be rolled out at the SBE National Meeting in October in Monroeville, Pa.

## IBIQUITY DISPLAYS HD RADIOS, INCLUDING NEW RADIOSOPHY UNIT

About 15 radios were on display in Ibiqity's suite at the Hilton, including the new Radiosophy unit that wasn't in stores yet.

The HD100 features a line-in input so users can play MP3 and other audio devices through the speakers. Radiosophy expected to ship the radio in mid-May at a list price of just under \$120.

Attendees could also see the unit at the Nautel and Harris booths.

## DADIAN TO IBIQUITY

Ibiqity Digital is beefing up its staff to work with broadcasters on HD-R conversions. Paul Dadian, formerly the broadcast sales supervisor at Harris Broadcast, is now broadcast sales manager for Ibiqity. The position is new for the company.

Dadian — based in the Cincinnati area — is handling new business licensing for the technology developer. He told RW that calling on small-market broadcasters is a priority.

The Leslie Report  
Are you in Leslie's loop?  
Are you in Leslie's loop?  
Are you in Leslie's loop?  
radioworld.com

## COOL STUFF 2007 AWARD WINNER



**Product:** Nautel Reliable HD Transport Suite  
**Company:** Nautel

Nautel Reliable HD Transport Suite aims to solve issues inherent in delivery approaches that require audio and data be sent to the transmitter using IP. While such streams are ideal for transferring arbitrary digital information, Nautel says, their use in streaming audio can result in on-air dropouts.

Nautel's approach improves HD transmission quality by lowering STL reliability requirements. Also, multiple exciters and/or transmitters can tune into a single IBOC stream making the system suitable for hot-standby exciter configurations, N+1 transmitters and multi-frequency networks, while maintaining synch with the studio. The suite is offered as a software solu-

tion for the company's IBOC deployments or using interface units for Harris or BE installations. John Whyte gives the idea a thumbs up.

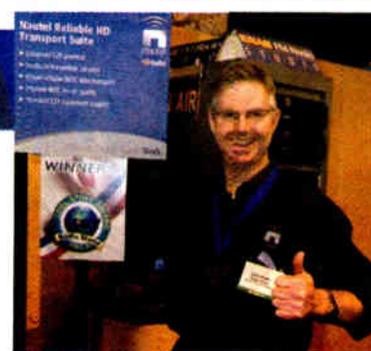


Photo by Jim Peck

**Shipping:** Immediately for Nautel deployments.

Mid-summer for BE and Harris IBOC deployments.

**Price:** Software is \$995. Pricing for interface units in non-Nautel deployment is \$4,990.

**Design:** Philipp Schmid, Nautel engineering team

**Contact:** (207) 947-8200 or [www.nautel.com](http://www.nautel.com)

## The cash-machine formerly known as RevenueSuite returns to the airwaves as Google AdSense for Audio.

RevenueSuite, a source of additional income for radio stations, promises to be even more so in this incarnation as AdSense™ for Audio, thanks to the power of Google technology. And when you combine that with the industry's most innovative station automation products — SS32™ and Maestro™ — you'll understand why hundreds of stations in markets of every size are starting to talk about the future of radio stations with renewed optimism.

At Google, our commitment is strong and clear and unchanging: we're here to help you run your station more efficiently and profitably than ever before.

Visit [www.google.com/ads/asaudio](http://www.google.com/ads/asaudio) to find out more.

© 2006 Google Inc. All rights reserved.  
Google and the Google logo are registered trademarks of Google Inc.





PRODUCT EVALUATION

# StationPlaylist Marries Studio, Creator

by Bill DeFelice

There are many parallels shared by LPFMs, small-market stations and my own Web stream, CapitalRadio.us. With operating budgets limited and leaving little margin for error, the common goal for us is to get the biggest bang for the buck when purchasing equipment.

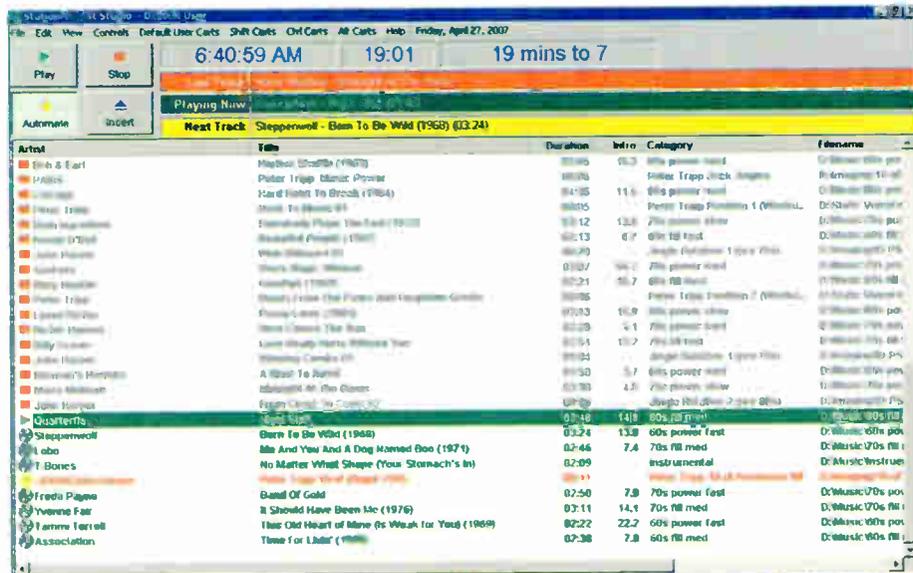
I recently arrived at the conclusion that I needed to update my station automation system. My DOS-based dinosaur had become dated and cumbersome; it was actually holding back improvement to my on-air presentation.

I had defined important real-world constraints for this upgrade project: the automation system had to be reasonably feature-rich, stable and reliable and most of all have responsive technical support.

My quest for a solution brought me to the opposite end of the globe. Ross Levis has been operating an LPFM in New Zealand since the turn of the decade. He shared my frustration with buggy software and lack of support from vendors more concerned with collecting support fees than actually providing a solid system. Levis formed a partnership to create the solution. The answer arrived in 2001 when StationPlaylist.com was founded.

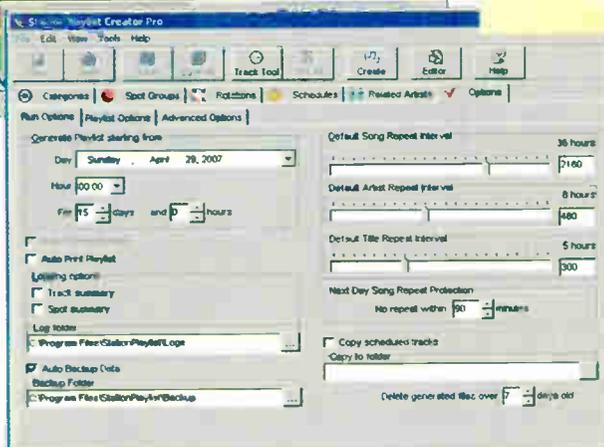
### Define your rotations

The StationPlaylist suite comprises two separate programs: StationPlaylist Studio manages on-air automated and live assist



playback while StationPlaylist Creator is the companion scheduler. There are several editions of the suite: Lite, Standard and Pro, allowing one to purchase the capabilities and features they need while controlling costs.

The suite runs on computers using Microsoft's Windows operating system with Windows Vista or XP recommended. I opted for the Pro version of the StationPlaylist suite, as this provides the



### Product Capsule: StationPlaylist Automation Suite

#### Thumbs Up

- ✓ Unlimited audio categories
- ✓ Flexible scheduling options
- ✓ Limitless walkaway scheduling
- ✓ Responsive tech support

#### Thumbs Down

- ✓ Cumbersome Daylight Saving Time configuration
- ✓ No automated audio file backup

PRICE: StationPlaylist Pro Bundle (as tested) approx. \$375 at press time (Prices are quoted in Euros)

CONTACT: [www.stationplaylist.com](http://www.stationplaylist.com)

greatest number of features and most flexibility. All editions can use audio files in various formats including WAV, MP2, MP3, MP4 (AAC), Ogg Vorbis, WMA, APE and AIFF.

Replicating my formatics in Creator was simple. While my old system was limited to a paltry 26 categories, StudioPlaylist Pro supports an unlimited amount. Once the music

categories were created I made the spot groups that would contain my imaging, jingles, station IDs and generic voice tracks. At this point I was ready to define my rotations.

A rotation template is required for each hour in the day, but you can use a single template for the entire day or create unique rotations for various dayparts. These rotations are used to build the schedules. The scheduler was a joy to work with, as it features related artists and repeat protections that actually work, unlike my former DOS system.

Creator's Track Tool can automatically scan your audio files to work with Studio's built-in level sensing segue settings. The only changes I needed to make were for songs with cold or soft endings. The resulting playback in Studio is tight and professional sounding with minimal effort spent tweaking.

While there are many things that are easy to learn, there are features and capabilities you'll need to experiment with to appreciate the power they offer. The powerful "break notes" feature allows the operator to perform a variety of tasks ranging from changing the on-air talent's virtual cart and time announce files, to changing automation modes and even communicating with the outside world via the computer's parallel port.

See PLAYLIST, page 36 ▶

# Time is Infinite

**Broadcasters have counted on ESE precision master clocks and timing-related products for over 35 years. ESE products accurately synchronize broadcast operations using a choice of GPS, WWV, Modem, Crystal or line frequency for affordable, reliable, perfect time.**

**Spend a few seconds on [www.es-web.com](http://www.es-web.com) to discover a vast universe of timing systems that are designed for easy installation, set-up and operation.**

**Measure and Display it with**

142 Sierra Street  
El Segundo, CA 90245 USA  
Tel: (310) 322-2136  
Fax: (310) 322-8127  
[www.es-web.com](http://www.es-web.com)

# MOST WANTED

*The world's best on-air microphone - period.*



*"The PR40 makes me sound fabulous. I absolutely love this microphone. We replaced our old microphones, which by the way were considered to be the industry standard, and the difference is like night and day."*

– DUSTY STREET  
FREED RADIO STUDIO  
ROCK AND ROLL HALL OF FAME  
SIRUS SATELLITE RADIO



*"I am not the most technical guy in the business, but after 32-years in the broadcast business, I know microphones. I plugged in the PR 40 straight into the board without any processing and it absolutely blew me away. Without a doubt the PR40 is the best broadcast microphone ever developed."*

– MIKE MCKAY  
BRAVO MIC COMMUNICATIONS  
KVLC 101-GOLD FM  
KXPZ ROCKET 99.5FM



*"This mic is unbelievable. I have worked with some of the most expensive microphones in the broadcast industry and none, I mean NONE compare to the PR 40. I have received reports from stations all over the world about the amazing audio quality of this mic."*

– GREG HEMMINGS  
WSLS-TV NEWSCHANNEL 10



*"The Heil PR 40 is incredible. There is absolutely nothing better on the market and I've had the opportunity to use all the standards over the years. The difference is really remarkable."*

– PD MICHAEL "SHARK" SHARKEY  
WSUN FM 97X  
COX RADIO TAMPA BAY



**Heil Sound Ltd.**

www.heilsound.com  
info@heilsound.com  
618.257.3000

## PRODUCT GUIDE

## Innkeeper Connects Signals to Telephone Line

JK Audio says its Innkeeper 1x gets audio in and out of telephone lines, and that caller audio does not exhibit the transmit and receive crosstalk common to analog hybrids.



It connects audio signals to a standard analog telephone line, and uses a 16-bit DSP to monitor the phone line and audio signals continuously. The dual-convergence algorithm achieves trans-hybrid loss typically exceeding 50 dB.

The Innkeeper 1x's front features a headphone jack and volume control. Users can monitor the send signal, the caller's voice or a mix of the two. This output also is sent to the rear screw terminals so a monitor speaker can be added. The company says remote features can be found on real screw terminals for ease of installation. Audio connections include mic/line switchable XLR input, XLR caller output and an additional, user-defined XLR output.

The Presence button enables a "richer" sound from the caller's voice. This digital filter brings back some of the low-end lost in transmission.

JK Audio also touts the Innkeeper 1x's ability to be remote controlled by either the optional Guest Module 1, RIU-IP remote interface or the included RS-232 cable. The Guest Module 1 allows call drop and dialing functions to be controlled remotely while the RIU-IP allows control of functions through any Web browser.

For more information, contact JK Audio in Illinois at (800) 552-8346 or visit [www.jkaudio.com](http://www.jkaudio.com).

## COOL STUFF 2007 AWARD WINNER



**Product:** NDS RadioGuard  
**Company:** NDS Ltd.

Deemed a "Cool Concept" award by our judges, NDS RadioGuard is an HD Radio conditional access system. As first reported in Radio World, conditional access was a notable topic at NAB and NDS was a big reason.

The future of conditional access for radio has yet to play out; and with potential customers using the Internet for targeted and protected content distribution, we'll watch with interest.

RadioGuard individually addresses and authorizes receivers to descramble broadcasts; it operates on the secondary programming through the HD Radio Importer. Proponents believe conditional access will fuel digital radio profitability and because certain program services require it. "Public services like radio reading services protect copyrighted material with RadioGuard," the company states. "RadioGuard provides for high-value events like concerts, insures integrity for subscription data services like traffic navigation and supplies new amenities for public radio members."

RadioGuard will be available through NDS and agents like Harris and Broadcast Electronics.

Shown: Patti Daino and Tom Rucktenwald.

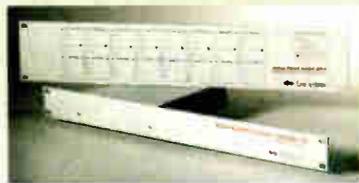
**Shipping:** Q3

**Price:** \$25,000

**Design:** NDS development teams in California and Israel, with cooperation from Ibiqity Digital

**Contact:** Visit [www.nds.com](http://www.nds.com) or e-mail [radioguard@nds.com](mailto:radioguard@nds.com)

## Product Showcase



### Model RFC-1/B Remote Facilities Controller

- control transmitter from any telephone
- 8-64 channels of telemetry and control
- programmable control by date and time
- optional printer and modem adapters
- programmable telemetry alarms
- integrated rack panel

615.228.3500

more information: [www.sinesystems.com](http://www.sinesystems.com)

Sine Systems, inc.

# Playlist

► Continued from page 34

Studio allows you to include CMD or EXE files in the schedule to perform functions outside of the automation software. On-air playlist data output is available not only for your station's Web page, streaming server and RDS applications, but also to aid your on-air talent in voice-tracking, whether it's performed locally or via the Internet.

The StationPlaylist discussion list is a great outlet for asking questions and shar-

ing tips with other broadcasters using the software in addition to suggesting future improvements and features. Levis actively monitors and contributes to the discussions.

Purchase of the software suite includes one year of tech support and software updates. Support subscriptions are as reasonably priced as the software suite. E-mail support is responsive, which was a welcome treat from what I had experienced with my old system.

Bill DeFelice was chief engineer of the now-defunct WMMM(AM) in Westport, Conn. He is an electronics technologist for the Norwalk Connecticut Public Schools. Reach him at [rwa2007@capitalradio.us](mailto:rwa2007@capitalradio.us).

## COOL STUFF 2007 AWARD WINNER



**Product:** NewTek TriCaster Studio  
**Company:** NewTek Inc.

NewTek TriCaster Studio is called a TV live truck that fits in a backpack.

So what's it doing in RW's "Cool Stuff" Awards?

"It's a sign of the times that increasing numbers of radio stations see the need to be able to shoot video of special events in and out of their air studios to throw up on their Web sites and live streams," one judge wrote. "The NewTek TricasterStudio is an affordable video capture unit complete with effects, editing, storage and streaming capabilities. Just the ticket for those who think radio must become TV to survive the video web streaming revolution."

Suitable for portable, live production, this 10-pound, six-input switcher automates cameras between on-air talent for live Web broadcasts. The judges liked the system as shown with Pizazz Productions' Auto-switch to stream shows without DJ intervention.

Viewers now can sit in with your personalities; smaller stations can afford to present a "network look" online.

Philip Nelson, left, and Tim Jenison are shown.

**Shipping:** Q2

**Price:** \$9,995

**Contact:** [www.newtek.com/contact.php](http://www.newtek.com/contact.php) for Newtek; <http://pizazzme.com> for Auto-switch



Photo by John Cutney

## COOL STUFF 2007 AWARD WINNER



**Product:** Omnia ONE Multicast  
**Company:** Omnia Audio

Clearly paying attention to developments in coded audio — including the spreading use of multicasting — Omnia is out with an audio processor that includes SENSUS technology to minimize artifacts and restores the fullness and depth that bit-reduction can take away.

SENSUS is a way of processing audio to pre-condition it for HD Radio multicasting. Thanks to a friendly price, this processor is also going to find a home in other

applications like satellite uplinks, Webcasting, podcasting and cellcasting. "Anyone producing real-time audio for coded channels can benefit," Omnia states.

Features include a new platform with more power than its predecessor, a 1RU frame, wideband gain rider followed by four bands of AGC, four bands of limiting and Omnia's low-distortion look-ahead final limiter. An FM version of the processor will ship shortly.

Frank Foti is shown with his latest baby.

**Shipping:** Now

**Price:** \$2,995

**Design:** Rob Dye, William Mohat, Ed Zmuginsky and Frank Foti

**Contact:** (216) 241-7225 or [www.omniaaudio.com](http://www.omniaaudio.com)



Photo by Jim Peck

# 'Flash Is Best' for Newsgathering

*With Cassette Offerings Dwindling, Manufacturers Urge Reporters to Invest in Solid-State for ENG*

by Charles Dubé

For more than 20 years, the venerable cassette recorder was found in the field bag of every reporter assigned to get interviews and cover breaking news events. Unlike its reel-to-reel predecessor, it was relatively small, fairly simple to work with and could be relied upon for at least an hour or two of portable recording capability.

As the PC world spurned development in hard drives and RAM, manufacturers looked at the potential of using new media for audio storage and the demise of the cassette recorder seemed inevitable. New generations of small solid-state flash recorders offer a plethora of audio quality choices (quality in trade for storage capability) and other enhancements that are to the liking of ENG crews.

### The long goodbye

In looking around at current offerings, the most obvious question was, what has become of the cassette recorder?

Manufacturers of tape recorders like Marantz and Sony were not late to the table in developing recorders without moving parts, slowly phasing out the cassette medium. Although the cassette has not quite yet been relegated to the land of the cart machine (seeing that Marantz still offers up the PMD222, for instance), very few machines are sold today.



Sony PCM-D1

Bob Cauthen of SCMS told me he discourages buyers from investing in cassette. With improvements in battery capacity over the last few years, along with the ability of newer-generation recorders to benefit from memory upgrades, he says, "Flash is the best."

Jeff Hugabone of CBS Radio in Hartford, Conn., says as far as his news staff is concerned, "tape is dead."

"All it took was one demo unit to come in to blow the news staff away. They were hooked from the first 10 minutes that they played with the thing," he said. His stations' cassette recorders are now assigned to the lower desk drawers as backup.

Recording audio from a live event is one thing; getting it edited and ready for broad-

cast is another. The cassette tape was always limited in that it either required that the sound was dumped to another machine, such as a reel recorder or digital workstation in real time, and then manipulated.

With today's flash recorders, audio can be uploaded to a workstation in much shorter time, allowing for sound bites, for example, to be recorded and edited (in a laptop or even in the device itself) for quick replay during a live broadcast, or for almost instant retrieval. Uploads can be accomplished via USB, Firewire or AES,

depending on the recorder.

Versatility, speed and quality are three qualifications being met aggressively by today's recorders.

### Sampling the marketplace

Depending on your needs for format, number of channels, storage capacity and physical size and weight, recorders can range anywhere from a couple of hundred dollars to several thousand.

Most allow for a variety of word size and sample rates (the most common being 24 bit/96 kHz), so that intricate dance of sound quality and amount of recording time can be finessed to fit the task at hand.

Voice recordings can be accommodated

with a mono setting, perhaps utilizing a slower clock rate and 16-bit word length for extended recording time, whereas high-quality music recordings are accomplished in stereo with 24-bit word length/96 kHz sample rate. Some recorders, such as the TASCAM HD-P2 (around \$1,300) offer sample rates up to 192 kHz.

The TASCAM HD-P2 also features high quality formats (16 or 24 bit/44.1 to 192 kHz) in a more conventional presentation. Resembling a portable DAT machine, the HD-P2 includes SMPTE time code for sync purposes, a simple user interface and angled LCD screen. Real pots ease control of the input level tactile event.

High-end offerings, such as the Sony PCM-D1 (about \$1,900) can do just about anything except run the bath water.

See ENG, page 38 ▶

## PhoneBOX Solo The Revolutionary Call Routing System



### Talk More, Worry Less

#### More Connections

Solo supports analogue, ISDN and Voip(Sip) lines

#### Less Wires

Solo delivers everything over IP without custom cabling or hardware

#### More Control

Solo integrates PC control, visual talkback, database and audio editing all as standard

#### Less Hassle

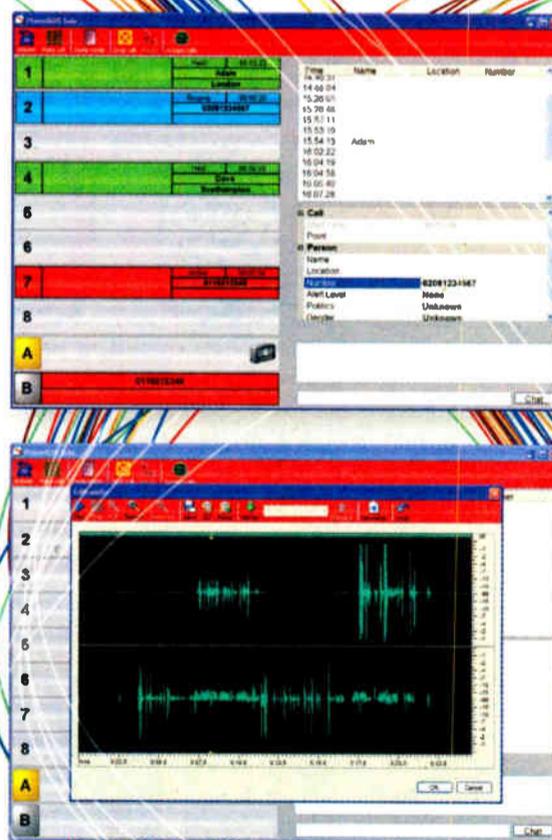
Solo is a software solution that installs in seconds

#### More Flexibility

Solo is fully configurable, programmable and expandable

#### Less Money

Solo systems start from \$1,900



BROADCAST BIONICS

T:+44(0)1444 473999 F:+44(0)1444 473888 E:info@phonebox.com

www.phonebox.com

# ENG

► Continued from page 37

It features built-in stereo mics, metering, a wide frequency response (a 30 kHz audio bandwidth using the 24 bit/96 kHz mode), an assortment of selectable recording format options and 4 GB of internal flash.

The flagship of the flash recorders at the time of this writing appears to be the Marantz PMD660, which retails for about \$500. This unit sports a four-hour record time, MP2, MP3, WAV (two hours at 48 kbps) and BWF formats, XLR inputs with phantom power (for condens-

make anyone familiar with a DAT machine feel at home. The Marantz PMD670 features XLR input/outputs, records at 16-bit WAV, as well as MP3, MP2 and BWF. The seven-hour battery life is a real plus for those on the road.

The company also recently released the CDR310 portable field recorder, which has a hard drive and records 16-bit audio in CD-DA, WAV, AIFF or MP3 formats and then burns a CD.

### Mics that record, and more

There are quite a few more interesting tools on the market.

The Roland CD2 CompactFlash and CD recorder might be of interest, if direct-to-CD recording is what you need. Six hours of CompactFlash make this a good choice for archiving longer-term events

such as performances and speeches. It also features rugged XLR inputs and outputs, as well as a built-in stereo mic.

AEQ offers the PAW-120 with 512 MB of flash memory. It uses USB connectivity to transfer files to a desktop

environment, is compatible with Mac and PC computers and records linear PCM and compressed MPEG.

Netherlands-based You/Com offers the Parrot ENG flash recorder. No PC is required, and it also serves as a communication device for file transfer or live reporting when used in combination with a mobile phone. By implementing the

Bluetooth wireless interface, a reporter can communicate with equipment and networks already at his or her disposal.

Olympus debuted its DS-Series, which includes three models that can be used to capture audio or listen to podcasts. Software included with each model eases downloading of audio content from a Web site. Memory from 256 MB to 1 GB enables recording times ranging up to

275 hours.

The Zoom H4 from Samson Technologies features two electret condenser mics configured in an X/Y pattern for stereo recording. Additionally it has onboard studio effects such as compression, limiting and mic modeling.

HHB's FlashMic DRM85 (and recent cardioid version, DRM85-C) is a digital recording microphone that records WAV



TASCAM HD-P2

er microphones), a built-in stereo mic and Marantz's Virtual Track Mode, which allows playback between customized marked points. The palm-sized PMD660 is constructed ruggedly for extensive field use.

In the mid price range of around \$700 we find professional machines featuring the state-of-the-art whistles and yet would

## STATION/STUDIO SERVICES

# YOU!

...like promotions that are *easy* to sell, a pleasure to air, and make you *lots* of money? We're all about that. Please take a moment to visit [GRACEBROADCAST.COM](http://www.gracebroadcast.com) and check out our :30- and :60-second "Sales Boosters." FREE demos, money-making sales helps, and *ridiculously healthy* returns await.

Neat Ideas. Free Demos.

**GRACE BROADCAST SALES**  
Sound Ideas for Building Business<sup>SM</sup>

Questions? Call us toll-free (888) 472-2388.  
[www.gracebroadcast.com](http://www.gracebroadcast.com)

"FOUNDERS OF OUR AMERICAN REPUBLIC"

20 :60-second features \$169

easy sell.

www.gracebroadcast.com

BIG SOUND • SMALL PRICE

WANT MORE SUMMER BILLING?

FARM SAFETY CAMPAIGN

RUN NOW THRU FALL!

20 :30-second spots (:20/:10)

Fully Produced • Just Tag & Sell! • \$159

GBS Sales Boosters Mean Business!

Inexpensive • Market Exclusive • Ready to Sell & Air!

FREE DEMOS & SALES TIPS!

GraceBroadcast.com

sell more ads 1-888-472-2388 make more money

### ATTENTION PROVIDERS!

Promote your services to **Radio World's** readers. Reach Radio Station owners/managers and engineers with your message. For information on affordable advertising call **Claudia** at **1-703-998-7600, ext. 154.**

## COOL STUFF 2007 AWARD WINNER



**Product:** RSS S-1608 Digital Snake System  
**Company:** Roland Systems Group

"Any station that does remotes with more than one microphone should take a look at this," a judge said.

Remote controlled preamps, just the right number of inputs and outputs, and a single CAT-5 cable for interconnection makes setup easy (and a whole lot lighter than an analog snake). At this price, put one in your studio to eliminate mic crosstalk or add extra inputs.

The S-1608 is a compact digital audio snake system that is portable and easy to install. It offers 16 audio channels in and eight out at 24-bit/96 kHz through a CAT-5 cable. The Roland Ethernet Audio Communication protocol using CAT-5 is a low-latency system, so it's radio-friendly. In addition, during remote events you can perform splits to as many positions as required to monitor, broadcast and recording locations. It is also a solution for permanent installations using existing CAT-5 wire for multi-channel audio distribution to and from multiple studio rooms.

Shown: Rob Read and Christian Delfino.

**Shipping:** June  
**Price:** \$2,995, includes stage unit, front of house unit, remote controller and 100 meter CAT-5 cable  
**Design:** Roland Corp. Japan  
**Contact:** (800) 380-2580 or [www.rolandsystemsgroup.com](http://www.rolandsystemsgroup.com)



Photo by John Casey

## COOL STUFF 2007 AWARD WINNER



**Product:** Dees Digital Rubicon-SL Retro  
**Company:** Sierra Automated Systems

Our judges ask: "What's more cool than this? An old-school rotary pot console with networked digital guts lets you build a modern radio studio with a retro vibe."

This "Cool Stuff" winner is a reminder that having fun is as much a part of radio as getting the job done. And from the faces in the SAS booth, it was obvious the manufacturer had a ball with this special-order project for NAB Broadcasting Hall of Fame inductee Rick Dees.

"Rick has always loved the operational style of the traditional rotary-fader RCA-style/level switch console," SAS states. "For his new multi-room facility, a modern router-based system was far more practical, so he turned to SAS for the complete audio routing/console control surface solution, including three Dees Digital consoles, Rubicons and the 32KD Digital Audio Mixer/Router."

The "Double D" is based upon the electronics of the Rubicon-SL console. It has 15 modules with rotary faders, cue detent, four bus select buttons, quick source select plus full router-based source select on each module and real VU meters.

Mike Hagans and Al Salci are at the controls.

**Shipping:** Now  
**Price:** \$33,500 including two RIOLinks, to operate as a stand-alone 64x64 console.  
**Design:** Rick Dees, Barry Victor of Victor Group and Al Salci and Mike Hagans of SAS.  
**Contact:** (818) 840-6749, e-mail [radio@sasaudio.com](mailto:radio@sasaudio.com) or visit [www.sasaudio.com](http://www.sasaudio.com)



Photo by Jim Peck

PRODUCT GUIDE

### APT Debuts Codecs With IP, ISDN Connectivity

APT's WorldCast Meridian is a multi-algorithm, fully duplex stereo audio codec offering IP and X.21/V.35 interfaces. It is suitable for studio-transmitter links and inter-studio networking applications, and gives broadcasters a choice of main and back-up telecom links as well as a suite of coding algorithms.

Standard 16 bit apt-X and Enhanced 16 and 24 bit apt-X are supplied, and an optional multi-algorithm suite incorporating MPEG 1/2 Layer II/III, MPEG 4 AAC LD and G.722 also is available.

Features include eight opto-coupled inputs and up to eight relay outputs, alarm and event logging and adjustable silence detection with alarm output. In addition to front-panel operation, the system comes with the Network Management Software package that enables monitoring and management capability over multiple WorldCast systems throughout a network.

APT also offers the WorldCast Eclipse, which provides Ethernet, X.21/V.35 and ISDN ports for access to networks such as IP, leased line, satellite, microwave and dial-up. Broadcasters also can choose from a selection of coding algorithms such as standard and Enhanced apt-X, MPEG 1/2 Layer I/III, MPEG 4 AAC, G.711 and G.722.

Features include automatic backup, auxiliary data, silence detect, contact closures, alarm ports and DSP architecture. For more information, contact APT in New Jersey at (800) 955-APTX (2789) or visit [www.aptx.com](http://www.aptx.com).



APT WorldCast Meridian

Zaxcom ZFR800



Marantz PMD660

or MPEG1 Layer 2 encoded audio files, which can then be transferred to digital workstations via USB cable. It uses a Sennheiser omnidirectional condenser capsule that sends the audio to a 1 GB flash drive.

Zaxcom is now shipping a product in that niche, the ZFR800 digital recording mic, which records up to eight hours of uncompressed audio on a removable 2 GB memory card.

With the introduction of the Sony MZ-M100 (and recently the MZ-M200), Sony improved greatly on the MiniDisc. Less expensive than many of the pro flash recorders at \$300, the MZ-M100 utilizes the new Hi-MD disk that can hold one gig of data (it can be used as an external hard drive) or several hours of audio depending on the format utilized (it supports WAV, MP3, ATRAC3, ATRAC3plus and linear PCM).

According to Gary Beebe at BSW, for those that have used the standard MD format in the past, the MZ-M100 will work with the old format discs (however, uploading to your PC with the old disks does not work, unfortunately). The USB interface to a PC results in quick upload times for editing. The new Hi-MD disks also retail for less than \$10 each, so storage is inexpensive.

Beebe goes on to say the ability to record in higher quality formats (such as ATRAC3), as opposed to recording in MP3 alone, allows for a better sonic quality to start with in editing. The HBB MDP500 (around \$1,700) is another MiniDisc recorder featuring a professional package with XLR connectors, RCA line outputs, USB, optical and S/PDIF input/output.

Developments in CompactFlash battery capacity are in rapid evolution, so the chances are good that the recorder you buy today will have enhanced capability tomorrow.

How does your radio operation record field audio? Tell us at [radioworld@imaspub.com](mailto:radioworld@imaspub.com).

Charles Dubé is chief engineer at WFCR(FM), University of Massachusetts, Amherst, Mass.

# AirTools™

## BROADCAST SOLUTIONS

### Your Forty Second Insurance Policy



The AirTools 6100 and 6000 Broadcast Audio Delays provide up to forty seconds of audio delay to your live or syndicated broadcasts making it easy – and affordable – to keep your airwaves clear of unwanted comments or profanity. With a full 20 kHz stereo bandwidth and four user-selectable algorithms, your audience will be unaware of the delayed broadcast. Carrying a competitive

price tag, the AirTools 6000 brings world-class profanity delay within the reach of any broadcaster. While advanced features found on the 6100 include AES digital I/O, TC89 time code dual window display support RS-232 remote control.

Clean, flexible, easy to use and seamless: AirTools Broadcast Audio Delays.



With the help of Symetrix AirTools 6100 Broadcast Audio Delays, NASCAR race fans are transformed from distant observers to virtual co-pilots by listening to the clear and profanity-free, live, in-car communications of their favorite NASCAR drivers at every Nextel Cup Series™ race. (PHOTO CREDIT: GETTY IMAGES)



### One Voice Processor for Many Faces...



Q: How do you get consistently great sound from one mic used by many voices throughout the day?

A: Simple. Use a voice processor capable of providing custom processing for each voice.

The AirTools 6200 Digital Voice Processor provides two independent mic channels programmed from the front panel or a Windows® GUI. Each unique voice can

be recalled upon demand using any of a number of convenient methods: front panel, AirTools RC-1 desktop remote, Windows (over your LAN if you like), or the 6200's internal calendar.

Economy... efficiency... great sound. Two processors in one rack space for your host and cohost or guest – by the market leader in broadcast voice processing.



Easily customize your voice chain with the 6200's Drag n Drop modules.

© 2007, Symetrix, Inc. All rights reserved. In the interest of continuous product improvement, features and specifications are subject to change without notice.

## Engineered by Symetrix

6408 216th St. SW | Mountlake Terrace, WA 98043 | USA | Tel: +1 (425) 778.7728 | Fax: +1 (425) 778.7727 | Web: [www.SymetrixAudio.com](http://www.SymetrixAudio.com)

# Buyer's Guide

Tech Updates



Inside

Radio World

Audio Processing

June 6, 2007

USER REPORT

## Aphex 230: Big Sound for Podcasting

by Scott Bourne  
Co-Founder, Principal  
Podango Productions

**SAN FRANCISCO** Most podcasters use commercial radio as a model for style, content and, of course, sound. They want their voices to be bold and present. Achieving that magical sound is a difficult task, as most podcasts are produced

processor. My criteria for choosing a voice processor are quality of sound, ease of use, enough controls to be flexible, connectivity and cost.

I first listened to the Aphex Model 230 at last year's Podcast & Portable Media Expo. The first thing I noticed was that it sounded fabulous. The tube microphone preamplifier was clean, warm, detailed and open. I then played with the various

kitchen) without cutting off words, false triggering or chattering. The Split Band De-esser handles sibilance smoothly without disturbing the body of the voice or dulling everything.

The Big Bottom makes voices fuller, more resonant and more intimate. It fills in the bass, like an automatic proximity effect compensator, without making voices muddy even when someone is right on top of the mic.

The EQ is single-band with 12 dB of boost/cut, frequency and Q. The Aural Exciter adds a natural presence and clarity. And if that is not enough processing, there is an insert jack for more.

There is a lot of processing in one unit but each process is simple to set up and use, employing either one or two knobs. The EQ has three. The meter shows out-

put or gain reduction. An LED lights up when the gate is engaged and when the de-esser is working.

The rear panel has XLR mic input; 1/4 inch send and return; XLR and 1/4-inch outputs; 1/4 inch-input for the mute switch; plus AES, SPDIF on RCA and TOSLINK, word clock selection and word clock in and out on BNC.

One big word of caution about interfacing the 230 into a system: Do not plug it into another preamplifier! That may sound obvious but even Line In inputs on some consoles are simply padded preamplifiers. And if you are using a recording interface box for recording, use the digital output of the 230. Much of the benefit of the 230 will be lost if you do plug it in to another preamp.

The Aphex 230's retail cost of \$799 is a bargain.

For more information, contact Aphex Systems in California at (818) 767-2929 or visit [www.aphex.com](http://www.aphex.com).



Bourne likes the 230's Easyrider and Big Bottom features.

in less than acoustically perfect studios (for example, a kitchen) with equipment that is less than professional; bit rate reduced; and listened to through internal computer speakers or ear buds.

### Vocal presence

Most podcasts are voice-only, so I have recommended to my colleagues and students that one of the most important purchases they can make is a voice

processors that are built into the 230 and was even more impressed.

The Easyrider compressor controls levels naturally; no pumping or hole punching even with extreme plosives. It also performs peak processing so the output will not get squashed by downstream processing. This allows voices to stay as present as possible.

The Logic Assisted Gate effectively reduces the ambient noise (remember that

TECH UPDATE

## DBMax Suitable For Digital, Webcasting, STL

The DBMax five-band level maximizer from TC Electronic is an audio enhancement processor for use in digital transmission, linking, Webcasting and radio STL applications. The company says high-resolution and high sample rate processing prevents unwanted distortion and listening fatigue from being generated.



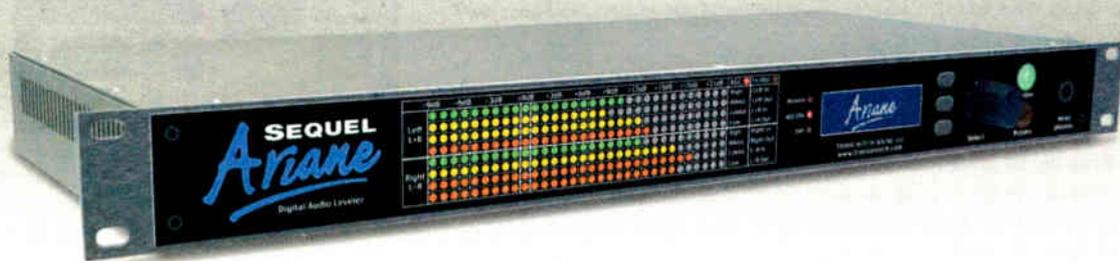
The five-band section in DBMax can be combined with automatic gain control, dynamic and static stereo enhancement, dynamic and static EQ and other tools for maximizing audio impact and creating a personalized sound.

Balanced and unbalanced AES/EBU I/O is standard and outputs are active. Sample rate conversion can be invoked when using digital inputs. Analog I/O is standard and outputs are active. The 24 bit converters are scaled in the analog domain, with scaling under preset control to minimize noise and maximize headroom under operating conditions. DBMax can be remotely controlled using GPI or RS485 serial inputs.

For more information, including pricing, contact TC Electronic in California at (818) 665-4900 or visit [www.tcelectronic.com](http://www.tcelectronic.com).

When quality level control matters, you do have a choice:

Ariane...



Or these:



The Ariane Sequel ...There Is NO Equal!

High-quality, multi-purpose AGC... for pre-processing level and ambience control • low-artifact streaming and digital broadcast • program distribution • television audio loudness optimization

TRANSLANTECH SOUND, LLC

Sound Processors and Broadcast Sound Consultation

<http://www.translantech.com> • email: [Sales@translantech.com](mailto:Sales@translantech.com) • New York: (212) 222-0330 • Europe: +49 2361 9049 649

©Copyright 2007 TransLanTech Sound, LLC

# Monitor and alarm **THREE** separate AM, FM and HD Radio® Multicast broadcasts—all at once



## TRIPLE PLAY! DaySequerra M3



Your HD Radio™ station has lots of signals to monitor, and we've just made the task three times easier. Introducing the DaySequerra M3. It's 3—three—THREE monitors in one! Now you can monitor and alarm three separate AM, FM or HD broadcasts using only 2U of rack space.

The M3 gives you three frequency-agile AM, FM and HD Radio™ Multicast tuners, each equipped with separate analog and digital balanced outputs and six programmable dry, floating contact alarm relays—18 relays, total. Each tuner stores 20 AM and 20 FM presets, decodes HD-1 through HD-8 multicast channels and displays signal strength, multipath, HD Radio™ PAD data and analog RBDS data. Indicators report HD Locked, Multicast Present, Delay Bit Set and Tuner Alarm.

Audio output is uncompromised, with an over-sampled D/A converter driving Class-A biased audio outputs. HD Radio™ stereo separation is better than 90dB, and THD+N is less than 0.005 percent. The M3 gives you full-time digital audio, even when tuned to an analog station, so you can monitor or record any station's audio in the digital domain. "Split Mode" monitoring lets you easily pinpoint errors in analog-to-digital delay, level and phase matching. Each tuner has a separate menu-adjustable output level setting, and a front panel lockout feature keeps errant button pushers from changing your settings.

The M3 addresses the issue of alarms in an intelligent fashion and employs proprietary heuristic algorithms which won't be fooled by pink noise or tones, and will generate alarms when real program silence is detected in HD Radio™ or analog broadcasts. Unlike external silence-sense units, the M3 can also trigger an alarm on loss of RF Carrier, OFDM Lock, RBDS data stream, PAD data stream, Multicast Available, and Delay Bit. You can set sensitivity for both Audio and RF Carrier Loss, and set Alarm Delay for all alarms to match your format. Contact your authorized DaySequerra Distributor today!

### DaySequerra M3 features and benefits

- Three AM, FM and HD Radio™ Multicast tuners in a 2RU enclosure
- 3 multi-function vacuum fluorescent displays (VFD)
- Displays and decodes HD-1 through HD-8 PAD data and analog RBDS data
- Each VFD displays Signal Strength and Multipath
- Displays HD Locked, Multicast Available, Delay Set and Tuner Alarm
- "Split Mode" provides easy to use HD Radio™ digital-to-analog signal, time, level and phase monitoring
- Three separate antenna inputs for multiple Rx antenna feeds; internal jumper links for single antenna feed
- Synthesized, pushbutton tuning for AM and FM bands including HD-1 through HD-8
- Each tuner has 20 preset stations for AM and FM bands
- Balanced analog audio outputs at +4dBV on XLR connectors, level adjustable
- Menu controlled output level adjustment—dependent for each tuner
- Transformer-isolated 110 ohm digital audio output on XLR connectors—5.1 Surround capable
- Full-time digital outputs, even when tuned to an analog station
- Six rear panel mounted assignable alarm relay contact closures for each tuner
- Front Panel control lockout feature to prevent unauthorized changes to setup
- Built in the USA to last—full 3 year warranty



## DaySequerra

[www.daysequerra.com](http://www.daysequerra.com)

154 Cooper Rd. Bldg. 902, W. Berlin, NJ 08091 ■ T: 856-719-9900 ■ F: 856-719-9903 ■ [sales@daysequerra.com](mailto:sales@daysequerra.com)

World Radio History

## USER REPORT

# Apex Broadcasting Points to Vorsis AP3

*Charleston Broadcaster Selects Unit for Its Construction, Functions and Expander Section*

by **Bruce Roberts**  
Chief Engineer  
Apex Broadcasting

**CHARLESTON, S.C.** Just like employees in this business, it is nice when a piece of equipment can serve multiple tasks. The Vorsis AP3 from Wheatstone is digital signal processor that will keep serving you even as your business changes.



It seems there are plenty of mic preamps on the market these days so why try the AP3? After all, it is not the lowest priced preamp on the market.

Right out of the box, I was impressed with its sturdy construction. Wheatstone

to give this jewel a test drive.

This is a dual-channel device, so you can process two mics separately with

so with the AP3. You have total control, and once again, the GUI makes this easy to understand.

With noise from air conditioning and computers, most control rooms are not all that quiet. I found the expander portion of the AP3 to be excellent at reducing the

**Mic settings are best accessed through the GUI; you do not have to sit on the floor in the control room during the morning show wearing headphones to adjust the talent's microphones.**



Roberts and his AP3 (bottom right).

Today, it may serve as a dual mic preamp in the control room. Next year, if we are not doing a live show any longer, it might be a HD2 audio processor or a STL pre-processor. What is good about this is that it won't end up in a pile in a storage room.

has helpful technical manuals and its customer support is very good as well. I thought about the Wheatstone consoles I have installed over the years, some of which were in very high RF fields, and I never had problems with the Wheatstone preamps in these consoles. So I decided

individual settings for each mic. These settings are best accessed through the GUI, which means you do not have to sit on the floor in the control room during the morning show wearing headphones to adjust the talent's microphones. You can sit in your office, drinking a cup of coffee, listening to a radio, adjusting the AP3 settings without interfering with the morning show.

#### As you like it

I found the GUI interface software to be easy to set up and understand. The AP3 comes loaded with plenty of presets to get you started. You can start with an existing preset and modify it to your liking and then save what you changed, or you can start from scratch and create your own settings. Either way, it does not take long to get a feel for working with the settings.

What may cinch the deal for you on this box is the Expander section. I have used many mic preamps in the past, all with expanders of some type, but most have limited control of the expander. Not

audible noise while still being open and transparent. The Compressor and EQ sections are straightforward in operation and sound very good. It did not take long to get to a sound that I liked during this demo.

Another cool option is the GP-4S remote mic control panel, which provides on/off, cough and talkback for the talent. Two of these can be connected to the AP3 (one for each mic). This was well thought out in the design of the AP3.

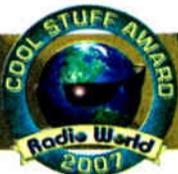
I now have another item to add to my budget for next year; actually I need to add a few of them.

The AP3 has all the ins and outs you could ask for: mic/line analog inputs, AES in on XLR and RJ-45, analog out, AES out on XLR and RJ-45. Also, there is a DB-25 that has everything in and out of the AP3 on it. As my other studio equipment changes, I will always be able to keep this in the chain.

The Vorsis AP3 retails for \$3,100.

For more information, contact Wheatstone in North Carolina at (252) 638-7000 or visit [www.wheatstone.com](http://www.wheatstone.com).

## COOL STUFF 2007 AWARD WINNER



**Product:** Telos Zephyr/IP  
**Company:** Telos Systems

The Zephyr/IP is designed with IP in mind. It combines RTP/UDP and TCP/IP streaming capabilities with MPEG coding to deliver broadcast-quality audio over IP connections.

The codec uses Agile Connections Technology to achieve high

audio quality over IP links such as the Internet and mobile IP services by adapting to network conditions. It minimizes the effects of packet loss, varying bandwidth and jitter through error detection, concealment and dynamic buffering.

It also has solutions to the problems of codecs that are behind firewalls, have dynamically assigned IP addresses or are subject to LAN Network Address Translation. Judges loved the information-rich graphical interface and the real-time graphical connection status display with "traceroute" to diagnose network traffic problems.

Shown: Ioan Rus and Tony Thimet

**Shipping:** Fall

**Design:** George Stage, Martin Weishart, Tony Thimet, Steve Kiffmeyer and Scott Stiefel

**Contact:** (216) 241-7225 or [www.telos-systems.com](http://www.telos-systems.com)

## COOL STUFF 2007 AWARD WINNER



**Product:** Talking Alert-Mini!  
**Company:** TowerSwitch, LLC

Safety is always cool. The Talking Alert-Mini! is a solar-powered, outdoor audio messaging safety system. It provides RF and tower site safety information to employees, contractors and visitors and optionally can detect unauthorized tower climbing activity via a pneumatic sensor. The Mini has an "Emergency" function that can be used to notify Master Control or local authorities. The unit interfaces with your station telemetry systems or can act as a standalone safety information "kiosk." The company calls it an economical approach to FCC and OSHA compliance at tower sites and rooftop antenna facilities, and our "Cool Stuff" judges agreed.



**Shipping:** Now

**Price:** \$425

**Design:** Michael Millard, Gary Minker

**Contact:** (954) 428-0244 or visit [www.towerswitch.com](http://www.towerswitch.com)

# Market Monitoring Made Easy

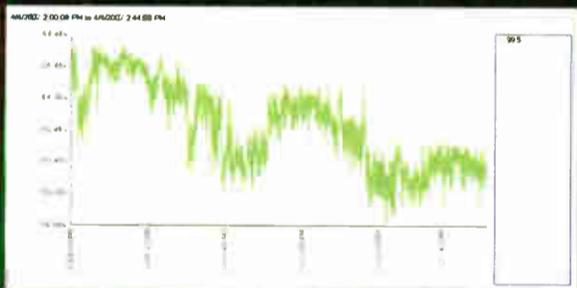
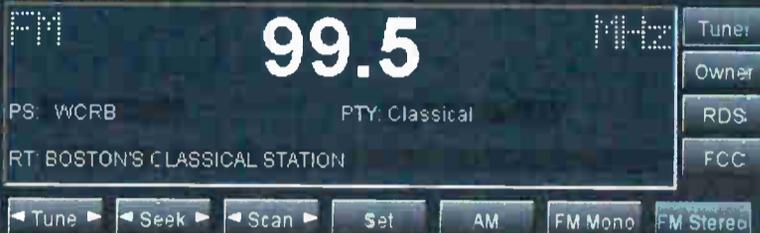
**BURK**  
TECHNOLOGY

Playback | Reports | Scheduler | Configuration | My Preferences | Help | Logout

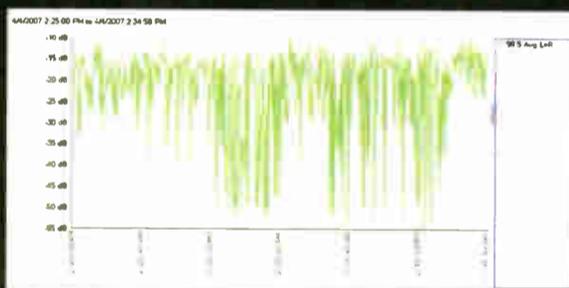
## WATCHBAND™

Boston

RDS



Detailed analysis of signal strength in heavy snow.



L+R audio levels graphed over time.

Radio Text	Count
Rihanna - Umbrella	10
Justin Timberlake - Summer Love	9
Gyre Class Heroes - Cupid's Chokehold	9
Ariana Grande - Girlfriend	7
Cameo Underwood - Before He Cheats	7
Maroon 5 - Makes Me Wonder	7
Pink - U + Ur Hand	7
Augustana - Boston	6
Diddy Ft/Keyshia Cole - Last Night	6
Ne-Yo - Because Of You	6

Watchband can generate playlists from your own or your competitors' Radio Text. Using RDS for revenue? Watchband provides proof-of-play.



Watchband monitors and logs RF levels and audio parameters off the air. Now you can not only listen, but also see and show audio phase and signal strength.

Watchband allows multiple connections via a web browser — no client software needed. This means engineers, PDs and GMs alike can take advantage of breakthrough market monitoring benefits:

### Local, regional and group PDs can...

- » View playlists for competitive stations
- » Listen live or play back logged audio for any station in the market
- » Monitor program and audio quality via the web
- » Compare signal strength to competitors and other stations

### Engineers and technical managers can...

- » Receive email alerts for audio alarms and off-air conditions
- » Correlate out-of-phase conditions with ad spots, syndication or other sources
- » Track detailed histories of audio and signal levels



Let Watchband show you a new level of off-air monitoring. Visit [www.burk.com](http://www.burk.com) to learn more.

7 BEAVER BROOK RD, LITTLETON, MA | 800-255-8090 | WWW.BURK.COM

**BURK**  
TECHNOLOGY

## USER REPORT

# Cleveland Cluster Pumps With Omnia

*Radio One Uses Omnia Models to Achieve Tightness, 'Critical' Hip-Hop Thump*

by Ric "Rocco" Bennett  
Chief Engineer, IT Director  
Radio One Cleveland

**CLEVELAND** Trying to put my experiences with Omnia into words would require a novel.

Back in the '80s I watched Frank Foti create processing monsters on the bench at the Statler Office Tower, home of WMMS(FM). These grew to become what we now know as the Omnia line of processors.

My perspective is from both an engineering point of view and a personally satisfying career on-air, a unique perspective. How many jocks and programmers actually understand what is going on in the audio chain? I do.

As my career has turned primarily to engineering for the last eight years, my critical listening ability is used to process four different formats for Radio One Cleveland: two FMs (WZAK Heritage R&B and WENZ Blazin' Hip Hop & R&B) and two AMs (WJMO Gospel and WERE, which is news/talk).

All four have different elements to attend to from an audio perspective. For example:

WERE is only 5 kW and competes with 50 kW's, therefore, presence and that "punch" is necessary. I use the Omnia 3AM, especially with talk and satellite feeds, and a consistent level is what I need. Also, I use the dayparting features to back off the processing on certain programs due to source issues. We do University of Akron football and basket-

ball, and a preset is specifically dayparted to avoid the "empty stadium" sound.

Our gospel station WJMO is a 1 kW with coverage serving the African-



Omnia 06 (Exi version)

American community on Cleveland's east side. Playing classic and current gospel, I need to get as much out of my processor as possible. Again, I use the Omnia 3AM. Looking for the classic AM aggressive wall of sound I grew up listening to, and being a graduate of the Foti School for Ears, I want as much presence on the dial as possible.

I use the Oldies preset with some tweaking of personal taste, and we have highs and lows on our gospel station that other AMs do not enjoy.

#### Packing punch

Our heritage R&B in Cleveland WZAK has not only been an institution in the community (No. 1 station 25-54), but has been the portal for any and all black artists to come through C-town.

Power is not a problem, nor is coverage, in delivering the audio that complements the programming. WZAK's listeners are largely female according to Arbitron, therefore what I am going for is clarity — some say transparency — in the sound.

The Omnia 06FM is my cornerstone of the audio chain. It allows me to process

WENZ is the top 18-34 station for the last 16 books, with its hip-hop format. The sound I am looking for should be as big as the station presentation. The Omnia 06FM is great in this application. I use all features, diving into the release and attack settings (things I glommed from Frank years ago). I also use the Omnia to give me the necessary processing for our new HD installation.

Hip-hop processing is a world away from the old days of rock and roll. Processing what are raw mic and bass beats is tricky; it can easily turn to mud. I also learned that the bass I deal with now doesn't exist in an old rock song. Those frequencies were generally untouched in the rock format. You need to process these with tightness (my word) and a punch.

The Omnia 06FM gives lets you dig into the realm of "the thump," critical in hip-hop processing. Go to a car audio store today; you will hear what this audience wants. I have sat behind the wheel of a vehicle that had the bass punching and going through me; it was like the

**Hip-hop processing is a world away from the old days of rock and roll. Processing what are raw mic and bass beats is tricky; it can easily turn to mud.**

true to the source recording (inoffensive to female ears) without losing the fullness. Again the presets are my starting point and I tweak according to taste, also mindful of the PD's wants and needs; walking that line like Johnny Cash.

The Omnia-6FM also is my choice as we head down the HD road. The versatility is necessary as the digital age envelopes us, whether it be HD or streaming.

front row of a Kiss concert. Hip-hop wants you to feel that in the front seat.

The Omnia 06FM allows the radio to give you that "thump processing" with transparency when you are playing the R&B, and pump and thump with the hip-hop.

For more information, contact Omnia Audio in Cleveland at (216) 241-7225 or visit [www.omniaaudio.com](http://www.omniaaudio.com).

## COOL STUFF 2007 AWARD WINNER



Product: AM-Pro Ver: 2.0  
Company: V-Soft Communications LLC

"An AM RF engineer's dream come true," the judges found. "Analyzing protection limits and designing optimized directional arrays for new or existing stations with full-color dynamic graphics is finally a snap — or just a few mouse clicks."

AM-Pro 2.0 is designed to perform the studies required of a spectrum designer in working with AM standard-band broadcast allocations and coverage. The program creates lovely maps that incorporate grid-style analysis allowing a user to plot coverage and interference using color bands to represent signal strength. It will plot both ground-wave and sky-wave signal contours as well as perform RSS studies to determine nighttime coverage limits.

The software implements an automatic sky-wave coverage analysis routine that operates according to a set of programmable rules. Daytime allocation studies are enhanced by the ability to remove overlap areas over water. Night allocation studies now support full "clipping" studies.

John Gray is shown.

Shipping: Now

Price: Tiered — \$7,995, mapping only; \$12,995, mapping with daytime allocation; and \$19,995, mapping with day and night allocation capabilities

Design: John Gray

Contact: Visit [www.v-soft.com/AM/](http://www.v-soft.com/AM/), e-mail [info@v-soft.com](mailto:info@v-soft.com) or call (800) 743-3684



Photo by Jim Peck

## COOL STUFF 2007 AWARD WINNER



Product: WASP AMS  
Company: Yellow Jacket Inc.

"This ADA-compatible ramp allows wheelchair-bound listeners to negotiate remote events easily, and saves those multiline cable snakes from stomping feet and rolling wheels," a "Cool Stuff" judge wrote.

"The new design incorporates sloped side ramps, which eliminates a trip hazard for able-bodied people. Also a neat accessory for covering up (and eliminating the trip hazard of) floor-bound conduit runs at transmitter sites. Worker- and audience-friendly."

WASP stands for "walkway access for special purposes." The company calls this the first cable ramp to incorporate Barrier Free access for all by eliminating side rails and the associated trip hazards. The system is expandable; you can make a wheelchair-friendly ramp as wide or as long as needed. It's strong enough to handle heavy truck and forklift traffic and a suitable crossing point for carts, hand trucks and pedestrians. Top-opening hinged lids make for easy loading of cables, lines and hoses. It is made from proprietary Durathane polyurethane, proven in daily use on cable protectors for two decades.

Shown: Rob Peterson, left, and Steve Gottlieb.

Shipping: Now

Price: \$463

Design: Yellow Jacket Inc.

Contact: (626) 357-7051 or [www.yjams.com](http://www.yjams.com)

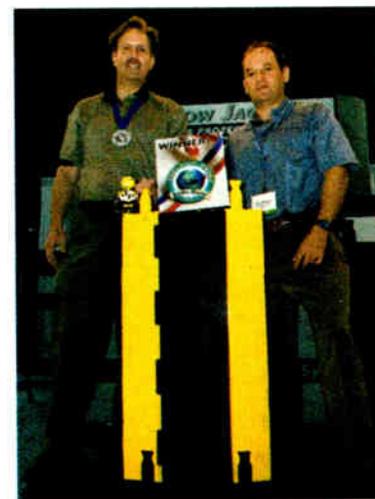


Photo by Jim Peck

# MUSICAM USA

**The World Leader in IP Codecs**

## Introducing our next generation of IP Audio Codecs

*featuring*

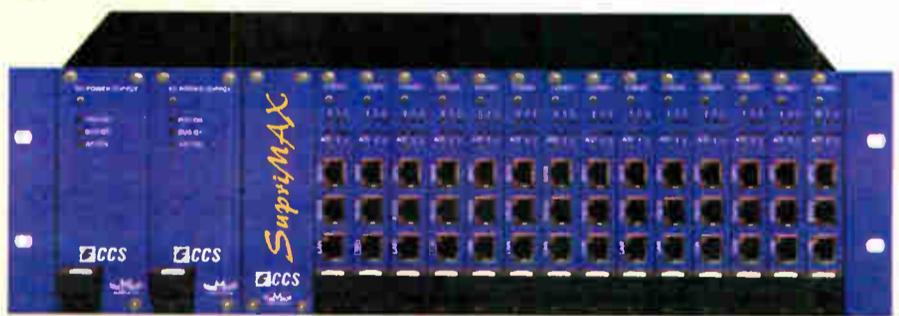
### *Suprema* IP DUAL AUDIO CODEC



- Includes LAN, ISDN U & S/T, and X.21 interfaces standard
- Auto backup to ISDN from IP or X.21
- Built-in Web server for control and monitor from remote locations
- Includes SIP protocol over IP, MPEG2, MPEG3, MP2/4 AAC, apt-X, G.722, G.711 & PCM
- Portable and Decoder Only versions also available

### *SupriMAX* MULTIPLE IP CODEC

- Up to 14 full-featured IP codecs housed in one unit
- Each module is hot-swappable
- Ideal for multicast applications
- Redundant Power Supplies
- Comes fully loaded with every available algorithm included
- Monitor large systems with SNMP management



*Visit our website to view the MUSICAM USA Product Portfolio and contact MUSICAM USA, the IP technology leader, for more information about how easily our products can help you master the "audio over IP" direction for your station(s). We are already shipping products to major groups and small stations alike. Check our references and let's go!*



670 North Beers Street, Bldg. #4  
Holmdel, NJ 07733 USA  
phone: 732-739-5600 - fax: 732-739-1818  
email: [sales@musicamusa.com](mailto:sales@musicamusa.com)  
web: [www.musicamusa.com](http://www.musicamusa.com)

## TECH UPDATES

## Silver Series Processes FM, HD Simultaneously

The Silver audio processor line from Audemat-Aztec can be used to process audio for FM and digital broadcasting such as HD/DAB and Internet streaming. Using multi-band DSP technology, the Silver line includes four- and six-band FM audio processors with dual paths, allowing simultaneous processing of FM and digital radio. HD versions, using look-ahead limiters, are available and process audio signals fed off into codecs employing bit rate reduction techniques (no stereo encoder).



The Silver six-band FM and HD versions include as standard the Ariane RMS leveler.

The six-band FM and HD versions include as a standard the Ariane RMS leveler. This AGC corrects input level variations and also improves consistency. The block can provide stereo enhancement with its matrix mode of operation.

The Silver audio processor line is provided with factory and user presets for many music styles and applications. The A/B switching enables comparison between current settings and the preset ones.

Features include 24-bit A/D and D/A converters; analog level control circuitry; 28-bit DSPs; clippers that run at 768 kHz; Ethernet and RS-232 ports; preset trigger port; LCD screen; memory devices to hold the software and firmware; 24-bit AES/EBU IO with sample rate converters; AES/EBU sync input; and security code locks.

The 6B-FM lists for \$7,985 and the 6B-HD is \$7,120. The 4B-FM lists for \$4,095; the 4B-HD is \$3,665.

The Silver line includes the 4Bmini-FM, which differs from the 4B-FM in that it is composite output only; there is no headphone output or LED metering. It has reduced processing controls and slightly reduced distortion control. The 4Bmini-FM lists for \$2,150 and the 4Bmini-HD for \$1,920.

For more information, contact Audemat-Aztec at its new location in Miami at (305) 249-3110 or visit [www.audemat-aztec.com](http://www.audemat-aztec.com).

## Inovonics Model 261 Targets All-Digital Facilities

The Inovonics 261 digital stereo processor offers three audio processing functions of gated, gain-riding AGC, program dynamic range compression and final peak control. The company says the unit may be configured to incorporate a single basic function independently, or to use all processing options for comprehensive audio control.

Inovonics adds that the DSP-based 261 targets many of the same applications served by its predecessor, the Model 260, but with improved performance and integration with all-digital broadcasting facilities.

Features include a menu-driven setup that uses an LCD display, rear-panel tallies that enable remote alarm indication and look-ahead limiting. The look-ahead limiter has program-controlled attack and release timing, restricting program peaks to an absolute "ceiling" value without flat-topped clipping.

The 261 accepts both analog and digital program inputs, and simultaneously provides analog and digital outputs. AES/EBU (XLR) output syncs to the rate of the input program when the digital input is selected, or may be set to 32 kHz, 44.1 kHz or 48 kHz output rate when analog program inputs are selected. Active-balanced (XLR) outputs may be adjusted by menu selection for a nominal line level between -10 dBm and +10 dBm.

Compression of program dynamics is afforded by a time-domain "platform" function associated with the peak controller. Additional circuit gain is imparted when this function is enabled, and may increase the average value of the program by as much as 6 dB, depending on the average/peak ratio of the source.

The Model 261 retails for \$1,150.

For more information, contact Inovonics in California at (831) 458-0552 or visit [www.inovon.com](http://www.inovon.com).



## Orban 9300 Adds AGC, Parametric Filter to 9200

Orban/CRL has debuted its all-digital 9300 Optimod-AM audio processor, adding more versatile equalization and a parametric low-pass filter to its predecessor, the 9200. In addition, the 9300 features a dual-band AGC with window gating.

The Quick Setup wizard walks broadcasters through the setup process. One-knob, Less-More Control, eases customization of the 9300's factory presets. Advanced Control parameters (accessible from 9300 PC Remote software) allow the user to customize the 9300's sound.

The 9300 features a five-band limiter with distortion-canceling clippers. The audio is divided into five bands, then separately compressed and limited. According to Orban, five-band limiting can operate more quickly than a wide-band compressor without causing audible side effects.

An all-pass phase scrambler makes peaks more symmetrical to reduce clipping distortion and to allow better control of loudness. The analog input is buffered and followed by an analog-to-digital converter. Processing takes place in the digital domain.

Orban says the 9300's high-pass filter removes subsonic information, which causes unnecessary gain reduction in the low-frequency band of the limiter, reduces transmitter component life, increases power consumption and causes intermodulation distortion in the receiver's AGC.

Low-pass filtering limits bandwidth as required by the regulating authority. It is adjustable from 4.5 kHz (strict ITU-R Recommendation 328-5) to 9.5 kHz (NRSC) and its shape is parametric, allowing the user to trade off high-frequency response against filter ringing.

The 9300 retails for \$4,950.

For more information, contact Orban/CRL in Arizona at (480) 403-8300 or visit [www.orban.com](http://www.orban.com).



# SH SHOWCASE

Products & Services

Ultra Slim - 30W, 50W, 100W  
Exciter/Transmitters  
New Features on the LEX Series Include:

**BEXT**

- Built-in Stereo Generator with Very High Separation and Fast Audio Clipper
- Up to Seven Frequencies, Power Levels, and Program Presets (remote controllable): Ideal Back Up for Multiple Stations
- Rear Panel Connection for Direct DC Battery Back Up with Auto Switch Over and Built-in Charger
- Built-in, Front Panel User Programmable FSK ID Keyer for Auto ID of Translators



619 239 8462

[www.bext.com](http://www.bext.com)

[bext@bext.com](mailto:bext@bext.com)

Don't be left out in the cold.

**Advertise!**

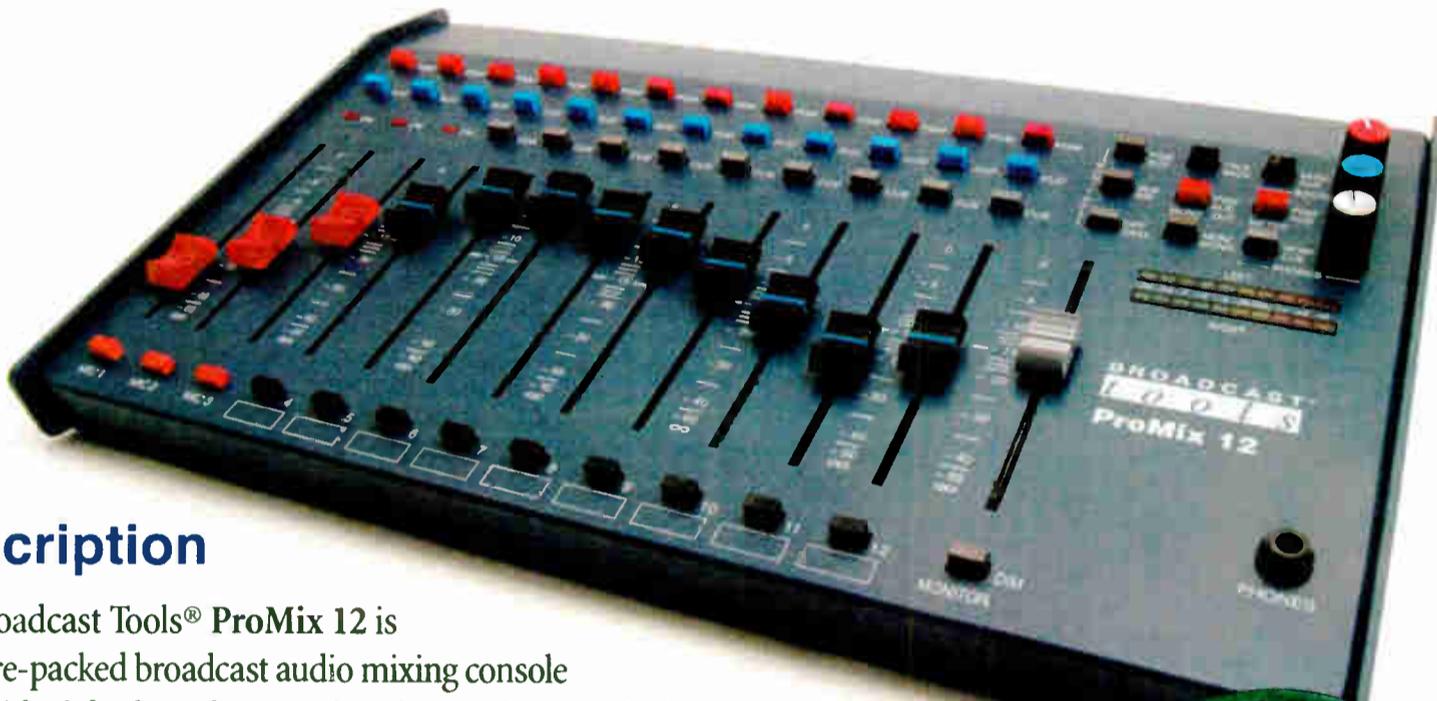
For more information contact  
Claudia VanVeen at  
703-998-7600 ext. 154  
or [cvanveen@imaspub.com](mailto:cvanveen@imaspub.com)





# ProMix 12

## Full-Featured 12 Input Audio Mixing Console



### Description

The Broadcast Tools® ProMix 12 is a feature-packed broadcast audio mixing console that is ideal for broadcast and audio production facilities needing an affordable compact solution. The ProMix 12 comes in a small package, but is loaded with useful features including a mix-minus output, an announce booth output with full duplex talkback, a monaural output, selectable metering, and remote starts on all line level stereo input channels. Whether you need a compact console for your on-air applications, or a mixer for post-production or fieldwork, the ProMix 12 is the right console at the right price. We're confident that the Broadcast Tools® ProMix 12 will provide many years of trouble-free operation.



[www.broadcasttools.com](http://www.broadcasttools.com)

# BROADCAST tools

[support@broadcasttools.com](mailto:support@broadcasttools.com)

USA Proud



INNOVATIVE PROBLEM SOLVING TOOLS FOR BROADCAST

World Radio History

## TECH UPDATES

## Omnia.8X Processes Eight Stereo Streams at Once

The Omnia.8X networked audio processor features eight discrete three-band stereo Omnia audio processors in a 2 RU chassis, providing simultaneous audio processing for multiple sources.



The company says it opens new possibilities for broadcasters. For instance, a portion of its resources could be dedicated to multicast or Web audio channels, while the rest is reserved for on-demand processing of in-studio performances, remote broadcasts or any other audio channel that could benefit from audio processing.

Omnia.8X uses the Livewire standard for networked audio over Ethernet, connecting directly to Axia IP-Audio networks. When used as part of an Axia network, a CAT-6 connection carries eight stereo inputs, eight stereo outputs and remote control. For standalone use outside an Axia network, the Omnia.8X can be paired with an Axia AES/EBU or Analog Audio Node for audio I/O.

Each of its eight audio processors has three bands of Automatic Gain Control plus Wideband AGC, Omnia's look-ahead final limiter and bass enhancement controls, and factory presets.

Applications include processing for headphone feeds where off-air monitoring is not possible; multi-band level control for remote codecs; sweetening caller audio from broadcast telephone systems; processing and sending audio streams from a studio complex to multiple transmitter sites; in-studio musical performances; on-demand processing for production rooms or dubbing stations; HD Radio multicast channels; and network origination audio destined for satellite transmission.

The Omnia.8X retails for \$4,995.

For more information, contact Omnia Audio in Cleveland at (216) 241-7225 or visit [www.omniaaudio.com](http://www.omniaaudio.com).

## AirTools 6200 Offers De-Esser, AGC Modules

Symetrix offers the AirTools 6200 digital voice processor, which includes modules such as high-pass, low-pass and shelving filters; de-esser; downward expander; comp-limiter/AGC leveler; four-band parametric EQ; and voice symmetry.

The 6200 is a dual-channel unit; it has two discrete audio pathways capable of processing microphone or line-level sources, independently or as a stereo pair.



Signals are converted to 24-bit, 48 kHz digital after passing through the analog input stages. Once in the digital realm, the user can define specific signal processing modules and their order in the signal chain.

Creation of voice programs and signal processing parameters may be done from the 6200 front panel or from 6200 Designer, a Windows application. A security scheme ensures that only authorized personnel may modify programs the station engineer has created.

Once the 6200 has been initially programmed, external real time control is flexible with or without the use of a computer. From a PC, the 6200 may be controlled via RS-232, USB or Ethernet. In lieu of computer control, real-time changes of program and DSP parameters may be actuated via user-supplied ESE time code, pots or MIDI devices.

Voice profile and module order information are saved to the 6200's 256 program locations. These programs can be recalled manually (from the front or externally) or automatically based upon a predetermined schedule using the unit's internal real-time clock, or ESE time code as a reference.

For more information, including pricing, contact Symetrix in Washington state at (425) 778-7728 or visit [www.airtoolsaudio.com](http://www.airtoolsaudio.com).

## HD-P3 Air-Chain Mode Suitable for FM, AM, HD

Wheatstone's Vorsis HD-P3 digital HD audio processor lets users select either Air-Chain or Production mode. Using Air-Chain mode, the HD-P3 can be used for FM, AM and HD broadcasts. Switching to Production mode, the unit becomes a flexible production processor.



Preset storage and recall are featured, as are expansion and multiband compression and HD latency FM delay.

Additional highlights include adjustable crossover points, AES or analog inputs, audio parameter control, output limiter and real-time readouts. It also offers tunable filters and notch, frequency de-esser, output gating, 44.1 or 48 kHz sample rates and four-band parametric EQ.

The HD-P3 retails for \$1,995.

For more information, contact Wheatstone in North Carolina at (252) 638-7000 or visit [www.wheatstone.com](http://www.wheatstone.com).

## Neural Has v4.0 NeuStar Hardware, Software

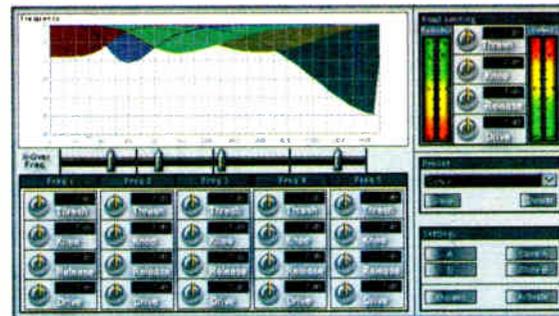
Neural Audio says version 4.0 of its NeuStar audio codec pre-conditioner/processor features more DSP, a user-friendly front panel and TCP/IP Web control; it is field upgradeable for future expansion.

It also is available as a software solution. The NeuStar SW4.0 includes the same features found in the hardware version of NeuStar 4.0, but allows broadcasters to simultaneously process multiple audio streams, so HD2, HD3 and HD4 channels or multiple Internet streams can be processed without additional hardware.

NeuStar SW4.0 also features Neural Coding Load Analysis System (N-CLAS) to decrease codec artifacts. N-CLAS predicts and visually displays when and where the coding artifacts caused by difficult content will occur. Then it modifies the content ahead of actual encoding.

Virtual audio cabling allows insertion between a Windows audio application using any Windows sound card. User presets defined by public and commercial radio broadcasters facilitate setup.

For more information, including pricing, contact Neural Audio in Washington state at (425) 814-3200 or visit [www.neuralaudio.com](http://www.neuralaudio.com).

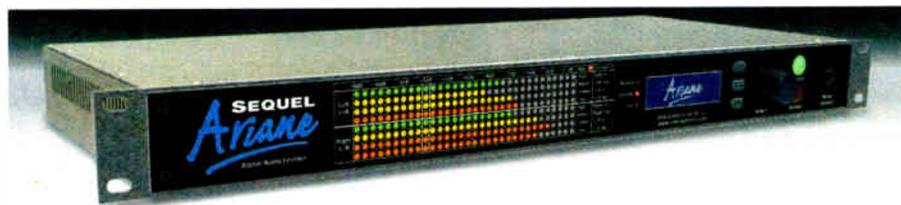


NeuStar SW4.0 Displays Intensity

## Ariane Sequel Updates Software, Goes 'Green'

TransLanTech Sound has new software for its Ariane Sequel digital audio leveler.

Firmware update version 1.10 offers adjustable attack time to allow more subtle AGC characteristics, and a "bypass" control on the updated Windows remote control program permits easy comparison of "Sequel" vs. "no Sequel" from a remote computer via TCP/IP or RS-232.



The older software had no way to bypass the processing (a control previously available only on the front panel of the unit). The new software allows the user to hear the sound either through the Sequel, or bypassed ("no Sequel") which TLT says is of importance to certain users and is a remote control feature they have been awaiting.

Both the firmware and remote software updates are available in a ZIP package from TLT's Web site.

TLT also introduced "green" RoHS-compliant hardware for the Ariane Sequel. Features of the all-digital unit include gain and stereo image control; sum and difference processing plus independent two-channel and stereo-linked modes; output peak protection limiting; and adjustable sample rate: 32, 44.1 or 48 kHz (or synch to input).

Additionally, it has eight savable user presets with contact closure remote activation; expanded metering options such as peak and RMS reading on input and output; analog and AES/EBU digital inputs and outputs; and a headphone output.

The Ariane Sequel retails for \$3,599.

For more information, contact TransLanTech Sound in New York at (212) 222-0330 or visit [www.translantech.com](http://www.translantech.com).

## Coming up in Buyer's Guide

Consoles, Mixers & Routers

July 4

Codecs, Telco & Internet Transport

August 1

Studio Acoustics, Design  
& Furnishings

September 1

# Products & Services SHOWCASE



Directional Antenna Systems



Diplexer/Triplexer Systems



High-Power Antenna Tuning Units



RF Components

**IBOC PHASE ROTATORS AVAILABLE!**

## AM Antenna Solutions Reach Farther, Sound Better!

LBA is your trusted supplier for IBOC-ready AM antenna systems. For over 40 years we have been designing and manufacturing reliable Directional Antenna Systems, ATU's, Multiplexers, Combiners, Cellular/PCS Colocation Isolators, and RF Components for all power levels.

Choose an LBA system and join thousands of satisfied broadcasters in the US and worldwide!

LBA can also design, manage, install and finance your complete RF project. Please call us for a free technical consultation!

## LBA Technology, Inc.

3400 Tupper Drive, Greenville, NC 27834  
252-757-0279 Fax: 252-752-9155

[www.Lbagroup.com](http://www.Lbagroup.com)

[jbrown@Lbagroup.com](mailto:jbrown@Lbagroup.com)



SINCE 1963

Factory Dealer For:



## Do Unattended Live Remotes



### DR-10 Dial Up Controller & Remote Broadcast Interface

- ▶ The DR-10 is a Dial-Up remote control with telephone audio input and output for remote broadcasting.
- ▶ If your automation works with satellite networks, you can use the DR-10's relay outputs to fire commercials, liners, etc. Save \$\$ with no staff needed at the studio!
- ▶ Use the DPDT relays to insert the phone audio directly into the program path when necessary, especially for emergencies or to bypass your automation system.
- ▶ When used with our Silencer Option, the DR-10 is the **ONLY** product available that completely removes DTMF control tones from the audio path for clean remotes.

Get the DR-10 & start saving money now!

[www.circuitwerkes.com](http://www.circuitwerkes.com)



CircuitWerkes, Inc. - 352-355-6555

## DIGITAL ANTENNA MONITORS

In-Stock-Available for Immediate Delivery



Price US\$2700.00 2 Towers  
Will operate with any remote control equipment.



Price US\$2100.00 2 Towers

For AM directionals with studio located at transmitter site.

These monitors are state-of-the-art instruments of unequalled accuracy (.5% or better on ratio and .5° or better on phase) and stability. With typical modulation the true ratio readout of these monitors is a factor of 10 more stable than instruments that measure normalized amplitude, and their phase readouts are rock solid. Phase sign is automatic, no extra operation. In addition to the analog DC outputs for remote control the Model CMR has a multiplexed BCD digital output which can be used to drive the Remote Indicator Model CMR-1. RF inputs have dual protection. Gas discharge tubes across the sample line terminations plus relay protection.

GORMAN REDLICH MFG. CO.

257 W. Union St. Athens, Ohio 45701  
Phone 740-593-3150 • FAX 740-592-3898  
[www.gorman-redlich.com/jimg@gorman-redlich.com](http://www.gorman-redlich.com/jimg@gorman-redlich.com)

## STEREO SOURCE SELECTOR & MIXER

### Redbox RB-SS10 10 Way Stereo Analog Source Selector/Mixer

- 10 stereo inputs, 1 stereo output, all balanced and can be wired unbalanced.
- Left and right gain adjustment for each input.
- Can act as a mixer or a source selector.
- 10 remote inputs also switched to a remote output, e.g. CD fader start.
- Illuminated front panel push button switches.
- Remotely controllable.

Visit our website for details:  
[www.sonifex.co.uk](http://www.sonifex.co.uk)



INDEPENDENT AUDIO

T: 207 773 2424

E: [info@independentaudio.com](mailto:info@independentaudio.com)  
[www.independentaudio.com](http://www.independentaudio.com)

## The **NEW** MiniMAC Remote Control



Smaller than the **MAC**,  
but just as **smart!**



t. 1.800.438.6040 | f. 1.704.889.4540  
[www.scmsinc.com](http://www.scmsinc.com)



t. 1.418.682.3380 | f. 1.418.682.8996  
[www.davicom.com](http://www.davicom.com)

A Great Place to Advertise!

## Radio World

Radio World's **Products and Services Showcase** provides a perfect medium for marketing your products and services.

For more information contact  
[cvanveen@imaspub.com](mailto:cvanveen@imaspub.com)  
to request a media kit.

Thanks for Reading Radio World!

# BROADCAST

## Equipment Exchange

"Broadcast Equipment Exchange" accepts no responsibility for the condition of the equipment listed or for the specifics of transactions made between buyers and sellers.

### ACOUSTICS

#### WANT TO SELL

**AcousticsFirst™**  
Toll-Free 888-765-2900  
Number: 888-765-2900

Full product line for sound control & noise elimination.

www.acousticsfirst.com

### ANTENNAS/ TOWERS/CABLES

#### WANT TO SELL

#### AM Ground Systems

Reliable, On-time Installation  
Quality Workmanship  
Ground System Evaluation  
and Repair

www.amgroundsystems.com

1-877-766-2999

#### FCC COMPLIANCE

#### TOWER SIGNS

AM & FM Tower Signs  
ASR-Tower Registration  
Standard & Custom signs

Guy Wire Protectors - Ant. Tags

#### ANTENNA ID PRODUCTS

antennalD@msn.com  
Free Catalog  
610-458-8418  
www.antennalD.com

### AMPLIFIERS

#### WANT TO SELL

Five (5) Belar RF amplifiers good condition will let go "as is" for \$185.00 each. Please contact mrale@bbnradio.org or call (704) 523-5555 for pictures or information

McMartin MS-25B Amplifier - \$25.00. e-mail mrale@bbnradio.org for information or call (704) 523-5555

### AUDIO PROCESSING (INCLUDES ON-AIR)

#### WANT TO SELL

RTS Model 416 DA. Will let go for \$75.00 plus S7H. Please e-mail mrale@bbnradio.org for pictures and information.

#### ADVERTISE!

For more information, call  
Claudia Van Veen  
at 703.998.7600, ext. 154.

### AUTOMATION EQUIPMENT

#### WANT TO SELL

Audisk Chassis (2) available for Parts or use. ( Many spare drives available) - \$500.00 each. Call Mark Bonach 740-653-4373

Now available, radio automation for the Linux operating system. Schedule music, voice track, create shells, auto or announcer assist mode, set intro and ending cues, hit the vocal every time with your voice tracks, execute exact time events, join networks, and more. The software is free, there is a small duplication fee. For more info call 406.665.1832.

### CD PLAYERS

#### WANT TO SELL

Sony MD JE 320 MD player. Good condition. Will sell "as is" for \$75.00 plus S&H. E-mail mrale@bbnradio.org or call mrale@bbnradio.org for information.

### CODECS

#### WANT TO SELL

Telos Zephyr Xstream for sale. Lightly used in perfect working order, verified by expert engineer. With original box, packing and manual. \$2500 plus shipping. Contact: Jo at 336-669-0707

### COMPLETE FACILITIES

#### WANT TO SELL

NEW OR USED  
COMPLETE PACKAGES  
STUDIO/STL/TRANSMITTER  
/ANTENNA OR ANY  
COMBINATION OF ABOVE.  
-LEASE OPTIONS-  
-EMERGENCY RENTALS-  
-REMOTE BROADCAST  
RENTALS-

SCMS, Inc. (800) 438-6040  
"You Know We Know Radio"

### CONSOLES/MIXERS

#### WANT TO SELL

Arrakis 10,000 - 18 channel Console in very good condition. Some Spare parts. Call for details. Currently in service. \$2500.00 - Call Mark Bonach 740-653-4373

Audio Arts A-50 audio console - Good condition used in light production work. Will include second power supply for free. Sell "as is" for \$900.00 plus shipping and handling. Please contact mrale@bbnradio.org for pictures and information or call (704) 523-5555.

LPB Blue 5c consoles - We've got about ten of them in good condition. We will let them go "as is" for \$575.00 each plus S&H. Contact Mike Raley at (704) 523-5555 or e-mail mrale@bbnradio.org for pictures.

#### WANT TO BUY

Want to purchase Gates Executive Console in good working condition. Or Gates Stereo Statesman. Must be in working condition. Please contact Steve Kelly at 601-946-9973 in Jackson, MS.

### LIMITERS/AUDIO PROCESSING

#### WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

### MICROPHONES

#### WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

### MISCELLANEOUS

#### WANT TO SELL

Seven (7) bulk demagnetizers and Four (4) wand demagnetizers. Sell for \$10.00 each. E-mail mrale@bbnradio.org

ROTOR BLOWERS AND FLAME BLOWERS,  
new & rebuilt for Elcom, Harris, CCA, CSI,  
McMartin, Goodrich Ent. 11435  
Manderson St. Omaha, NE 68164  
402 493 1886 FAX 402 493 6821

#### WANT TO BUY

Collector want to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035

Equipment Wanted: old, obsolete, or unused signal processing, recording, and playback equipment. Limiters, preamps, EQ, mixing desks, microphones, tape machines (cassette and reel), etc. Donations gladly accepted; asking prices considered. 443-854-0725 or ajkivi@gmail.com

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSF, KOB, KCBS, KQW, KRE, KTIM, KYA, etc... Feel free to call me at 415-383-6216 or you can email me at ronwtamm@yahoo.com.

### DONATIONS NEEDED

All Volunteer, Non-profit Low Power community radios stations need Equipment. Will offer tax deduction letter, You determine donation value, We will pay shipping. Equipment shared between three Wisconsin stations. Looking for Mics, Mixers, field equipment, etc. You name it. Email: Dan@WIECradio.org

### MONITORS

#### WANT TO SELL

Three (3) sets of Belar RF amplifiers, Stereo and Modulation Monitors will sell "as is" for \$500.00 each. Please contact mrale@bbnradio.org or call (704) 523-5555 for pictures and information.

### POWER CONDITIONING, REGULATION, UPS

#### WANT TO BUY

The 3-phase Variac Power Controller, 4T4, for a Continental 317C2 Transmitter. Can trade a Gentner TS612 Phone system (4 complete systems) worked when removed from service in Fall of 2006." Contact Paul Reynolds (210) 615-5427 or e-mail paul.reynolds@coxradi.com.

### RECORDERS/PLAYERS (PORTABLE/STUDIO)

#### WANT TO SELL

Revox G36 - a wonderful 10 ? " stereo tube recorder. Includes prof produced fm music tapes circa 1960-70. \$300.00 -Ed Davison 217-787-0800

Kenwood Kx1030 semi-pro Cassette recorder with adjustable options. \$65.00 Ed Davison 217-787-0800

Onyko Semi-pro cassette recorder/duplicator - like new includes new cassettes \$75.00 Ed Davison 217-787-0800

#### WANT TO BUY

Audicord Record/play or Play only Cart machines. Must be in on-air quality. Also needing good quality carts in airable condition. Call Kent Lankford 618-943-3354

### PROMOTE YOUR BUSINESS!

#### ADVERTISE!

For more information, call  
Claudia Van Veen  
at 703.998.7600, ext. 154.

### REMOTE & MICROWAVE

#### WANT TO SELL

Marti RPU 30 remote transmitter - VHF 161.70 and 161.76 and a CR10 Receiver 161.73 and 161.76 - Good condition. \$1500.00 - Call Mark Bonach 740-653-4373

**WE RENT FOR LESS \$**

Blueboxes	FM Exciters
Zephyrs	FM Power Amps
POTS Codecs	STL's
RF/Audio Gear	Test Equipment

If we don't have it, we will get it!  
SCMS, INC. (800) 438-6040  
"You Know We Know Radio"

Cellcast RBS 400 Cellular remote broadcast console. Uses cell service to link to studio for remote broadcasts. Serial # 1900. Comes with case, antenna, power supply, headphones with boom mic, instructions. Used - in working condition. \$50.00 obo plus shipping. Call Bob Rivkin 760-320-4550

Complete Marti STL-10 System on 949.975 Mhz. Consists of one STL 10 transmitter and one R-10 Receiver. Good condition. \$1800.00 - Call Mark Bonach 740-653-4373

Five (5) Sensaphone 1100 Alarm and remote monitoring units. \$100.00 each plus S&H. E-mail mrale@bbnradio.org or call (704) 523-5555 for information

### SPEAKERS AND HEADPHONES

Collector wants to buy old vintage speaker & amplifier, McIntosh, Marantz, Electro Voice, Jensen, Altec, Tannoy, Fisher, Dynaco, Cash- pick up 773-339-9035

**VSoft** The Leader in Broadcast Engineering Software  
Winner of the 2007 "Cool Stuff" Award!

Professional Software packages for FCC applications and predicting coverage.

- Create stunning "real-world" coverage maps and interference studies using Longley-Rice, PTP, FCC, ITU-R P.1546-1, and Okamura/Hata with Probe 3™
- Search for FM channels under spacings and contour to contour protection using FMCommander™
- Prepare AM skywave and groundwave allocation studies and map FCC contours with AM-Pro 2™
- Plot STL paths over 3D terrain with Terrain-3D™

Quality custom mapping and FCC engineering consulting available.  
www.v-soft.com (800)743-3684

### STATIONS

#### WANT TO SELL

THREE STATIONS FOR SALE! 1. Summerville-Trion, GA 5000 watts WZQZ combined with cable casting into local cable service Comcast. 2. Valley Head-Fort Payne, AL 10,000 watts day timer WQRX 3. WTHP, Gibson, GA 94.3, on air 6 months. Contact: C T Barinowski 706 309 9610 or ctbarinowski@comcast.net

OWN YOUR OWN!! Exclusive Cash Cow Combo less than 100 miles from Atlanta with One of A Kind Revenue Stream. Hurry! This one won't last long! RETIRE DOWN SOUTH-CALL DAVE HEDRICK-256-613-2630

START LIVING YOUR DREAMS! Buy our FM Radio Station - 60 miles from Houston - Only \$490,000 garland@radiobroker.com 713-921-9603

### STEREO GENERATORS

#### WANT TO BUY

ORBAN 8218 Stereo generator. Contact Jim Stitt 513-621-9292 or engineering@wyso.org.

### STUDIO ACCESSORIES/ SUPPORT

#### WANT TO SELL

Audio Arts Model PS 6040 power supplies (Audio Arts R-60). Will let go for \$300.00. Please contact mrale@bbnradio.org or call (704) 523-5555 for information.

Four (4) Audio Arts R-60 manuals for \$35.00 each (price includes shipping). E-mail mrale@bbnradio.org or call (704) 523-5555 for more information.

### TAPES/CARTS/ REELS/CDs

#### WANT TO BUY

V-DISCs - 12 in. 78 RPM discs. Bill Cook, 719-687-6357

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-687-6357.

### TRANSMITTERS/ EXCITERS/ TRANSLATORS

#### WANT TO SELL

Used QEI FM 500w transmitter tuned to 88.7FM. It is about 15 years old with serial number T500107. Please e-mail mrale@bbnradio.org for pictures of the unit.

Used QEI FMQ 10000 in fair condition. This is a three phase transmitter with a bad IPA and combiner that will make about 95% power with QEI 600w amplifier. Willing to let this 12 year old transmitter go for \$3595.00 but buyer must arrange pick up and shipping from Charlotte, NC. Contact Mike Raley at (704) 523-5555 or e-mail mrale@bbnradio.org for more information. Serial number is ST10KW054.

visit our website:  
www.radioworld.com

Continental 815-R Power Rock - 1984 5 kW transmitter - good condition \$6000 firm and you pick up. Call Larry Barker 606-598-2445 or 606-813-1207.

FM Translator in Richmond, Virginia - call Cameron Clavey 831-585-8498

FM translator South of Baton Rouge, LA - call Cameron Clavey 831-585-8498

# Consultants

**Consulting Communications Engineers  
EMC Test Lab**

- FCC Applications and Field Engineering
- Frequency Searches and Coordination
- AM-FM-CATV-ITFS-LPTV
- EMC Test Lab-FCC and European (IEC)



**OWL ENGINEERING, INC.**  
E-mail: info@owleng.com **651-784-7445** Fax (651) 784-7541  
5844 Hamline Ave. N., Shoreview, MN 55128 \*Member AFCEE\*

The Coverage Map Store

**REALcoverage.com**

High Performance Engineering  
for Maximum Coverage

## DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

**CORNELL-DUBILIER  
MICA CAPACITORS**

FROM STOCK

**JENNINGS VACUUM  
CAPACITORS**

FROM STOCK

**JENNINGS VACUUM  
RELAYS**

**SURCOM ASSOCIATES**  
2215 Faraday Ave., Suite A  
Carlsbad, California 92008  
(760) 438-4420 Fax: (760) 438-4759  
e-mail: link@surcom.com web: www.surcom.com

**Structural Analysis**



**ERI**  
Electronics Research, Inc.  
7777 Gardner Road  
Chandler, IN 47610  
(812) 925-6000  
www.ERInc.com



**COMMUNICATIONS TECHNOLOGIES, INC.**  
BROADCAST FREQUENCY/BROADCAST ENGINEERING CONSULTANTS

- AM, FM, TV coverage & Upgrades
- Broadcast transmission facility design
- FCC applications preparation - construction permit and license engineering

Clarence M. Beverage • Laura M. Mizrahi  
P.O. Box 1130 Tel: (856)985-0077  
Marlton, NJ 08053 Fax: (856)985-8124  
www.commtechrf.com

**FASTER...  
MORE ACCURATE RADIO COVERAGE**

- Real Time 3-D Displays
- Interference calculations
- Cost effective mapping
- Fully Integrated databases
- Used by the FCC
- Latest standards built-in



Visit us on the web at www.radiosoft.com  
101 Democrat St., Ft. Demarest GA 30034-7725

**Doug Vernier  
Telecommunication Consultants**

Broadcast Engineering Consulting  
AM/FM/TV/LPTV/DTV  
Custom mapping service  
Frequency searches  
Propagation prediction  
FCC application preparation



**VSoft**  
Software for your PC  
(800) 743 3684  
www.vsoft.com

**Mullany Engineering, Inc.**  
Member AFCEE

Serving Broadcasters Since 1948

9049 Shady Grove Court  
Gaithersburg, MD 20877  
(301) 921-0115  
Fax (301) 590-9757  
mullaney@mullengr.com

**EVANS ASSOCIATES**

Consulting Communications Engineers

**FOR YOUR ENGINEERING NEEDS FOR THE NCE-FM  
FALL 2007 FILING WINDOW, CALL US!**

- Field Services & Construction
- FCC Licensing & CP Applications
- Upgrade Studies & Technical Negotiations

210 S. Main St., Thiensville, WI 53092 (262) 242-6000  
ben@evansassoc.com Member AFCEE

**SCMS inc.**  
YOU KNOW WE KNOW RADIO!

John Lackness Sales  
210-775-2725  
P.O. Box 932 • Cibola, TX 78108  
johnl@scmsinc.com  
BROADCAST EQUIPMENT SALES AND RENTALS



"Upgrading your facilities? Call me for studio equipment that best fits your needs!"

**GRAHAM BROCK, INC.**

BROADCAST TECHNICAL CONSULTANTS  
Full Service From Allocation to Operation AM/FM/TV/AUX Services:  
Field Work: Antenna and Facilities Design

Over 45 years engineering and consulting experience

912-638-8028  
202-393-5133  
www.grahambrock.com

**Reach Broadcast Professionals!**

For more information, including rates & deadlines, call Claudia Van Veen at 1-703-998-7600 ext. 154.



Advertise today!

## ACTION-GRAM

**EQUIPMENT LISTINGS**

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations only. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

Please print and include all information:

Contact Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company/Station \_\_\_\_\_  
Address \_\_\_\_\_  
City/State \_\_\_\_\_  
Zip Code \_\_\_\_\_  
Telephone \_\_\_\_\_

Brokers, dealers, manufacturers and other organizations who are not legitimate end users can participate in the Broadcast Equipment Exchange on a **paid** basis. Line ad listings & display advertising are available on a per word or per inch basis.

WTS  WTB  Category: \_\_\_\_\_  
Make: \_\_\_\_\_ Model: \_\_\_\_\_  
Brief Description: \_\_\_\_\_  
Price: \_\_\_\_\_

WTS  WTB  Category: \_\_\_\_\_  
Make: \_\_\_\_\_ Model: \_\_\_\_\_  
Brief Description: \_\_\_\_\_  
Price: \_\_\_\_\_

WTS  WTB  Category: \_\_\_\_\_  
Make: \_\_\_\_\_ Model: \_\_\_\_\_  
Brief Description: \_\_\_\_\_  
Price: \_\_\_\_\_

\*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.  
**Broadcast Equipment Exchange**  
PO BOX 1214, Falls Church, VA 22041 • Tel: 703-998-7600 • Fax: 703-998-2966

**Radio World**

5827 Columbia Pike, 3rd Floor Falls Church, VA 22041  
PHONE: 703-998-7600 • FAX: 703-671-7409

**Classified Advertising Rates Effective January 1, 2007**

	1x	6x	13x	26x	32x
1-9 col inch (per inch)	\$110	105	100	95	90
10-19 col inch (per inch)	\$95	85	75	65	60
Distributor Directory	\$135	130	125	120	115
Professional Card	\$105	100	95	90	85
Station/Studio Services	\$200	170	145	123	105
Classified Line Ad	\$2/word				
radioworld.com Line ad	\$2/word				
Blind Box Ad	\$16 additional				

**Call Claudia Van Veen, at 703-998-7600 ext. 154 or e-mail: cvanveen@imaspub.com to reserve space in the next issue.**

**Use your credit card to pay, we now accept VISA, MASTERCARD and American Express.**

**www.radioworld.com**



# NEW

## ECONCO NEW TUBES

New tubes are now manufactured by **ECONCO** at our award winning facility in Woodland California! Of course, we continue our 34 year tradition of high quality power tube rebuilding.

TEL: 800-532-6626  
 INTL: +1-530-662-7553  
 FAX: +1-530-666-7760  
 www.econco.com  
 SE HABLA ESPAÑOL



### TRANSMITTERS/EXCITERS/ TRANSLATORS WTS Cont.

**GEI FMG 10000 10 kw FM transmitter**, needs work- missing part of driver module. Needs exciter. You pick up. \$3000. call Tommy Jenkins 830-896-1230

**LPB transmitter 60 watt**. Used only twice \$1500 firm. Call Larry Barker 606-598-2445 or 606-813-1207.

**FM Translator at 104.5** - Manchester, KY Call Joey Kesler 606-843-9999

**WANT TO BUY**  
**WANTED!** The 3-phase Variac Power Controller, 4T4, for a Continental 317C2 Transmitter. Can trade a Gentner TS612 Phone system (4 complete systems) worked when removed from service in Fall of 2006." Contact Paul Reynolds (210) 615-5427 or e-mail paul.reynolds@coxradio.com.

**AM Phasors, Phasor Parts, Phase Monitors, Rf Switches, AM Transmitters.** Continental Communications 314-664-4497, Contcomm@Sbcglobal.net

**OFF THE AIR?**  
**Emergency Back-up Rentals**

FM Exciters - STLs -  
 FM Pwr Amps - Antennas -  
 Studio & Test Equipment

**SCMS Inc (800) 438-6040**  
 "You Know We Know Radio"

**67 kHz (SCA Channel 1) Used or repairable** (with manuals if available) - call John 517-316-5307

### TUBES & COMPONENTS

**FOR THE BEST PRICE**  
 & 24 Hr service on transmitting tubes & sockets/parts, new & rebuilt call Goodrich Ent. at 402-493-1886 day or night, www.goodrichenterprises.com.



**ISO 9001 Certified**  
 The Choice of Successful Broadcasters Since 1934

### NEW POWER TUBES

Triodes  
 Tetrodes  
 Pentodes

### NEW SOCKETS & REPLACEMENT PARTS

### Worldwide Availability

Made in U.S.A.

CALL 800-414-8823  
 Int'l (650) 592-1221  
 Fax (650) 592-9988

Visit our Web Site at  
 www.eimac.com



**D And C Electronics**  
 An International Distributor of RF Components  
**Tubes**  
 NEW & REBUILT

TRANSMITTERS, STUDIO EQUIPMENT, STLs, ANTENNAS, RADIO DATA SYSTEM (FOR CAR RADIO DISPLAY) EXCITERS-TRANSMITTERS, TRANSLATORS, MIXERS-CONSOLES, RADIO LINK RPU, MOSFETS, VACUUM CAPACITORS, SOCKETS

**Eimac** **Pro-Tek**  
**SVETLANA** **EEV**

**BEST PRICES** To Order: 1-800-881-2374  
 Outside U.S. (352) 688-2374  
 Se Habla Español

**FROM OUR STOCK**

3089 Deltona Blvd. Spring Hill, FL 34609  
 BEST SERVICE 352-688-2374  
 Fax 352-683-9595  
 Website: www.dandcelectronics.com

**RF PARTS CO.**  
 Se Habla Español We Export

**EIMAC • TAYLOR • SVETLANA**  
 New & Rebuilt Tubes - Same Day Shipping

Motorola • Toshiba • SGS • Thomson & Mitsubishi Semiconductors

800-737-2787 760-744-0700  
 rfp@rfparts.com www.rfparts.com



**PROMOTE YOUR BUSINESS!**  
 To advertise, call 703-998-7600 ext. 154 or e-mail: cvanveen@imaspub.com

## TRANSCOM CORPORATION

Serving the Broadcast Industry Since 1978  
 Transmitters and Broadcast Equipment for Radio & Television

### Used FM Transmitters

250 W	2007	Crown 250E
1 KW	2007	Crown FM1000E
1.5 KW	1983	BE FM 1.5A
2 KW	2007	Crown FM2000E
3.5 KW	1986	Harris HT 3.5
5 KW	1987	Harris FM5K1
7+ KW Digital	2005	Harris Z16 HDS IBOC
7+ KW	2002	Harris Z16 IBOC
10 KW	2001	Henry 10,000D-95
20 KW	1985	Harris FM20K
20 KW	1989	QEI FMQ 20,000B
30 KW	1989	BE FM30A
30 KW	2006	Harris HT30CD
50 KW	1982	Harris Combiner w/auto exciter-transmitter switcher

### Exciters

Used 2004 Harris DIGIT 2nd Generation  
 \*New\* 20w & 30W Synthesized exciters

### New TV Transmitters- Analog and Digital

OMB & Technologix  
 VHF and UHF TV Antennas  
 (10 W to 10 KW) TV STL

### Used TV Transmitters

1 KW UHF Axcerra 832A, CH 28  
 55 KW UHF GE TT59B, CH 25  
 55 KW UHF RCA TTU-55

### Used Misc. Equipment

Altronics 20KW Air Cooled Load  
 Denon 720R cassette NEW  
 Sola Voltage Reg. 60hz 1 KVA s-phase

Please visit our website, [fmamtv.com](http://fmamtv.com), for current listings and **HARRIS** Surplus Inventory.

### Used AM Transmitters

5 KW	1996	Continental 315D Solid State
5 KW	1974	Continental 315F
5 KW	1982	Harris MW5A
5 KW	1987	Harris MW5B
10 KW	1985	Continental 316F
50 KW	1985	Continental 317C2

800-441-8454 • 215-938-7304 • FAX: +1-215-938-7361

www.fmamtv.com • E-mail: [transcom@fmamtv.com](mailto:transcom@fmamtv.com)

RETUNING & TESTING AVAILABLE • CALL US FOR A QUOTE!

# EMPLOYMENT

### HELP WANTED

**IT MANAGER/ASST. ENGINEER 99X & Q100** have an opening for an IT Manager/Asst. Engineer. To view job requirements and details, go to [99X.com](http://99X.com) or [Q100Atlanta.com](http://Q100Atlanta.com). Cumulus Media Partners is an equal opportunity employer.

**PROMOTE YOUR BUSINESS!**  
**ADVERTISE!**  
 For more information, call Claudia Van Veen at 703.998.7600, ext. 154.

### BRADLEY

**Broadcast/Pro Audio Sales Rep** - Mostly inbound telephone sales in a friendly, low-pressure working environment. Requires working knowledge of professional audio equipment and pleasant helpful phone manner. Work in our Frederick, MD office or your choice of location. SBE or other industry certifications a plus. Video, lighting, or I.T. experience a plus. Send resume and cover letter to [careers@bradleybroadcast.com](mailto:careers@bradleybroadcast.com)

### POSITIONS WANTED

Vibrant female with smooth, relaxed, conversational voice presence. Loves being on-air, commercial production, news delivery etc. Call Alexandria Evans at 214-881-6859 or email onesmoothelady@yahoo.com



## MORRIS

**Morris Communications Company, owner of Oesert Radio Group in Palm Springs, CA has an opening for a Market Engineering Manager.** Morris is a large multi-media company with over 6000 employees all over the world. We're committed to radio and we're consistently among the top rated stations in our markets. Better than that, we're the top billers. The ideal candidate will have a 5+ years of experience as a Chief Engineer, and formal electronics training. We've got a total of 8 radio stations here in the area. There are AM directional arrays, and hilltop FM's. It's a big job, and you'll be part of our ongoing growth and technical improvements. If you're the right engineer, we'll offer an excellent compensation package that includes an engineering vehicle, a 401(k) and an assistant. Send your resume to Jay White, Corporate Director of Engineering, [jay.white@morris.com](mailto:jay.white@morris.com). Morris is an Equal Opportunity Employer.

Focused, young, dedicated, hard-working Personality. Can produce shows, write bits, charters, spin concepts; knows music, pop culture and trends. Alex Alexander "LA" LA\_Liveradio@yahoo.com 214-293-3701

Over 25 years solid experience - Morning man, news, production, pleasant, relaxed style, married, stable, looking for final gig, all markets considered. Larry Kay, 717-653-2500 anytime.

Promotions and sales driven! Exceedingly good with attention to detail, prep/execution! Great energy, extremely friendly/personable, driven and focused. Kenya McCullough 469-254-6311 [kenyam05@yahoo.com](mailto:kenyam05@yahoo.com)

Very efficient and structured, plus positive influence. Possesses creativity with a background in Theater Arts, good copywriting, and communication skills. Rosie Booker 817-478-3880 or [rosie.booker84@yahoo.com](mailto:rosie.booker84@yahoo.com)

Very social and outgoing personality. Open minded and can adapt to any situation. Works well with others, and GREAT behind the scenes! Anthony [abradley1277@yahoo.com](mailto:abradley1277@yahoo.com); 214-367-7290

Are you a small market station needing a good nuts & bolts engineer in the New York/New Jersey area? I will make your station shine! CET, fully FCC Licensed. Available for Full/Part-time/Contract work. Available immediately. Mitchell Rakoff, 917-864-7718. [mitchellrakoff@yahoo.com](mailto:mitchellrakoff@yahoo.com)

# ◆ READER'S FORUM ◆

## Skip Pizzi and HD

Wow! I want some of the Kool-Aid Skip drank before he wrote "Digital Radio Rules, Dude" (April 25) or at least a share of the money he got from Ibiquity for writing it.

"While some question the wisdom" of AM-IBOC — yeah, like anyone who actually works in AM radio — "this could stimulate the long-awaited renaissance of the senior broadcast band." Yeah, pink elephants could fly out of one of your body cavities too, Skip. Just don't hold your breath. One more time for those who failed 4th grade English: It's not the medium, it's the message.

"Under optimum conditions, the audio quality improvement of AM-IBOC over analog AM is impressive and will likely not be lost on existing users of AM." Hmmm, how is this possible since existing users will still be listening in analog — and now you've cut their frequency response down to a telephone line-like bandwidth?

As soon as Ibiquity realizes that a huge majority of AM broadcasters are resisting their suggestion to go IBOC, with its associated very high costs, I think they'll begin a rule change proposal to require it. Once they have greased the FCC's palms enough, it will more than likely be implemented.

Skip did get one thing almost correct in his article: This will "kick it into the next gear." Trouble is, that gear is reverse.

*Jerry Arnold  
Director of Engineering  
WPRS(AM), WINH(FM),  
WWSY(FM), WMGI(FM)  
Terre Haute, Ind.*

Skip Pizzi writes that the Extended Hybrid mode of FM-IBOC will provide a big boost in capacity "without significantly affecting existing analog service." Where's the evidence that there will be



no significant effect? The NRSC did not evaluate this mode at all. The only data on Extended Hybrid mode filed with the FCC to date is a brief report from NPR, and it does appear to show significant SNR degradation in some FM receivers.

There are, in fact, three Extended Hybrid modes (MP2 through MP4) included in the NRSC-5 standard. NPR only tested the MP3 mode, and it is not the one that would have the greatest impact on analog FM reception. In any case, it is far too skimpy a data set to base a ruling on, so why has the FCC not requested that a thorough evaluation be done?

In my view, this is yet another example of the FCC bowing to industry pressure, and abdicating its responsibility to protect the public interest by failing to do due diligence on the technical aspects of the IBOC systems. As for the travesty that is AM-IBOC, don't get me started.

*Barry McLarnon  
Ottawa, Ontario*

## Kosher Radio

I very much enjoyed seeing and reading the "Midwest NCSY Radio Hour" story ("Isenberg Talks to Teens in Chicagoland," April 25). I appreciate your interest in our program.

*Stephen Steiner  
Director of Public Relations  
Orthodox Union  
New York*

## DRM Trials In India

That was an interesting article about DRM trials in India (RW Online, April 27). The only thing I'm curious about is, who will buy the receivers for it?

Analog AM radios are cheap and plentiful whereas DRM receivers are costly. If DRM is a tough sell here in North America, how do those transmitter manufacturers expect to sell Indian consumers on it? Though I like the idea of DRM, particularly for shortwave, I can see that there just isn't enough demand for it yet.

*Bruce Atchison  
Edmonton, Alberta*

# ADVERTISER INDEX

This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

PAGE	ADVERTISER	WEB SITE URL
6	Aphex Systems	www.aphex.com
27	APT	www.aptx.com
10	AudioScience Inc.	www.audioscience.com
15	Axia - A Telos Company	www.axiaaudio.com
17	Axia - A Telos Company	www.axiaaudio.com
46	Bext, Inc.	www.bext.com
5	Bradley Broadcast	www.bradleybroadcast.com
37	Broadcast Bionics	www.bionics.co.uk
14	Broadcast Depot	www.broadcastdepot.com
19	Broadcast Electronics	www.bdcast.com
25	Broadcast Electronics	www.bdcast.com
47	Broadcast Tools, Inc	www.broadcasttools.com
3	BSW	www.bswusa.com
4	Burk Technology	www.burk.com
43	Burk Technology	www.burk.com
49	Circuit Werkes	www.circuitwerkes.com
7	Comrex Corporation	www.comrex.com
1	Continental Electronics Corp.	www.contelec.com
49	Davicom, a Div. of Comlab	www.davicom.com
24	DaySequerra/ATI	www.daysequerra.com
41	DaySequerra/ATI	www.daysequerra.com
34	ESE	www.eseweb.com
31	Henry Engineering	www.henryeng.com
11	Global Security Systems	www.gssnet.us
33	Google Inc.	www.google.com/ads/asaudio
49	Gorman Redlich Mfg	www.gorman-redlich.com
38	Grace Broadcast Sales	www.gracebroadcast.com
21	Harris Corporation	www.broadcast.harris.com
35	Heil Sound, Ltd.	www.heilsound.com
12	Inovonics Inc	www.inovon.com
18	JK Audio	www.jkaudio.com
26	Kintronic Labs Inc	www.kintronic.com
23	KOWA Optimed, Inc.	www.kowa-usa.com
49	LBA Technology, Inc.	www.lbagroup.com
8	Logitek	www.logitekaudio.com
45	Musicam - USA	www.musicamusa.com
32	OMB America	www.omb.com
9	Omnia - A Telos Company	www.omniaaudio.com
21	Orban	www.orban.com
49	SCMS Inc.	www.scmsinc.com
28-29	Sierra Automated Systems	www.sasaudio.com
36	Sine Systems	www.sinesystems.com
49	Sonifex Ltd.	www.sonifex.co.uk
39	Symetrix, Inc.	www.airtoolsaudio.com
13	Telos Systems - TLS Corp.	www.telos-systems.com
40	TransLanTech Sound, LLC	www.translantech.com
56	Vorsis	www.vorsis.com
2	Wheatstone Corporation	www.wheatstone.com
55	Wheatstone Corporation	www.wheatstone.com

## How to ...

**Send a letter to the editor:**  
E-mail [radioworld@imaspub.com](mailto:radioworld@imaspub.com) with "Letter to the Editor" in the subject field. Please include article title and issue date.

**Change your mailing address:**  
Visit [www.radioworld.com](http://www.radioworld.com), click on Subscribe to RW and follow instructions to change a subscription address.

**Contribute freelance articles:**  
E-mail [radioworld@imaspub.com](mailto:radioworld@imaspub.com) and request our Writer's Guidelines.

**Get information about advertising:**  
Download a media kit including editorial calendar at [www.imaspub.com](http://www.imaspub.com).

**Run a Help Wanted ad:**  
E-mail Claudia Van Veen at [cvanveen@imaspub.com](mailto:cvanveen@imaspub.com) or call 703-998-7600 x154 for print and online rates.

**Purchase reprints of articles:**  
E-mail Emmily Wilson at [ewilson@imaspub.com](mailto:ewilson@imaspub.com).

**Radio World**  
The Newspaper for Radio Managers and Engineers

**Our readers have something to say**

"With our recent conversion to HD on our flagship station, I really depended on Radio World to keep me informed on the latest in HD technology and implementation. I consider it to be the Wall Street Journal for radio engineers."

**Chris Wilk**  
Chief Engineer  
WFLS/WYSK/WWUZ Radio  
Fredericksburg, Va.

Shown: Heil PR 30. Large-Diameter Dynamic With Hum-Bucking Coil and Built-in Shock Mount

## ◆ READER'S FORUM ◆

## No Job Too Small

It is so great to see Louis King get credit for his outstanding work in our industry ("A King of AM Antenna Systems," April 25). I had to chuckle when I read he "never turned down a technical challenge." That is so true.

**I have always had great respect for Louis King. He is a quiet, brilliant man who always made me feel I should have worked harder in school.**

When I was a DJ in the early 1960s at WMTN(AM) in Morristown, Tenn., Mr. King was hired to do work on the directional system. During a visit to the men's room, he discovered the toilet kept running after it was flushed.

Mr. King took the top off the commode and was adjusting the float. I was tearing news from the UPI just outside the men's room when the station manager came through and saw Mr. King working on the toilet. The manager, the late Bill Holland, yelled, "I can't believe this. I am paying a man one hundred dollars a day plus expenses to work on my toilet."

Our paths crossed many times over the years, and I have always had great respect for Louis King. He is a quiet, brilliant man who always made me feel I should have worked harder in school.

Congratulations, Mr. King.

*Don Crisp  
Elizabethton, Tenn.*

## Priority One

Just wanted to say thank you for Jim Withers' most recent article ("Ownership: You Are Always in Sales," April 25).

I've been in radio advertising sales since 1983, after a 20-year on-air career

in a couple fairly large markets. After being in sales management for a couple years in the mid-80s, I joined WAKR(AM) and WONE(FM) here at home in Akron as a local sales rep. I am our senior sales rep (age 58), and I'm in the streets with local businesses daily.

Our rock FM is heavily agency business, but our news-talk/oldies/sports at night AM is heavily direct business, and most of those businesses are just like you talked about in your article.

What I'm getting at is, Jim's article was so timely for either a station owner or sales rep in a medium or small market. He's so right when he says the "ma and pa" business owner really cares about one thing and one thing only: growing his/her business. They aren't looking for their next best friend; they're looking for a person they can learn to trust who will help them make more money.

Thanks so very much, Jim. Your article spelled out what I've believed in for decades.

*Tim Davisson, Sr.  
Akron, Ohio*

## Hold on to Your Bandwidth

I read Ed De La Hunt's letter (*Reader's Forum*, May 9) and I can't agree with him more. I work for the Madison Square Garden Television Network and have been in the broadcasting business since 1975. N.Y. radio programming sucks.

**Let the big boys take all that narrow banding and IBOC HD jamming crap to a vacant channel when TV gets off the VHF band. Leave AM alone.**

I listen heavily to stations WHTG(AM)1410 and WMTR(AM) 1250 out of New Jersey. I listen on my 93

## Parity Check

The recent brouhaha spawned by the Copyright Royalty Board's revised rate structure for sound recording rights on Internet radio has had an important secondary effect: It has drawn attention to a seeming imbalance in royalty rates paid by different forms of radio.

Rights fees have been paid by Webcasters since 2002 and by satellite radio essentially since its inception, yet terrestrial radio broadcasters are exempt from them for over-the-air programming.

In essence, the statutory license for sound recording rights established by the U.S. government allows the largest and most profitable segment of the radio market to pay nothing to rights holders while the emergent players (satellite and Internet radio) pay a substantial — and likely increasing — amount for the same rights.

A reasonable outsider might see this as a serious disparity.

The lack of U.S. broadcast royalties also has thwarted the establishment of reciprocal agreements with other countries where terrestrial radio does pay such fees. Thus American rights holders are deprived from collecting revenue from their substantial airplay abroad due largely to the domestic U.S. broadcaster exemption.

Of course, there are numerous reasons behind such tiered rates, not least of which is the simple historical process under which each section of copyright law that governs these matters was created. Different times — and different regulators or legislators — produce different rules. The business models and competitive environments of the respective sectors also vary significantly. And of course, there is the traditionally held quid pro quo of increased record sales due to terrestrial radio airplay.

To many observers, though, terrestrial radio seems like it's getting something of a free ride. The longer the discussion of revising royalties continues, the more scrutiny will be placed on this "platform inequity" and the more risk that radio will lose its historic free pass.

Radio has benefited from the license arrangement, and it has survived challenges. But in the past, terrestrial radio never had such closely fashioned competitors working under such dissimilar rules. (The last time this came up, the industry didn't need the "terrestrial" modifier.) Today, a harsher light would be shed on broadcast radio in any such inquiry. The addition of new digital delivery methods further supports those who argue that terrestrial radio is ripe for reassessment.

Some wonder how much appetite major record labels will have to challenge the status quo for terrestrial radio; but under the new CRB process, this issue is likely to come up, perhaps early next year.

We expect broadcasters to mobilize strongly against this. NAB's David Rehr knows there's a risk and used his recent NAB keynote to ramp up the rhetoric against labels. "Imagine the brazen greed it takes for the record companies to expect us to pay them for the honor of marketing and promoting their artists' music," he said. "It would make much more sense for us to charge them for our promotional efforts." Once joined, this battle could make the current Internet radio struggle seem like a gentle skirmish.

Radio critics can make strong arguments on this case, in part because the industry has failed to nourish its valuable relationship with labels. Radio had best gird for a fight. Meantime, stations would do well to learn from the current hubbub among Internet broadcasters and ask themselves what would happen if the "free music for free promotion" understanding with labels were to unravel.

— RW

Malibu car radio as well as my large collection of AM, FM and SW portable radios. On my Grundig Satellit 6000 you can hear a tremendous difference when switching between narrow and wide bandwidth. I advise AMers to never give up an inch of their bandwidth. As a listener I'll use all the bandwidth I can get.

Let the big boys take all that narrow banding and IBOC HD jamming crap to

a vacant channel when TV gets off the VHF band. Leave AM alone.

*Ernie J. Nardi  
Brooklyn, N.Y.*



Visit radioworld.com for CoolCast video demos of all the 2007 "Cool Stuff" Award-winning products.

### —EDITORIAL STAFF—

Paul J. McLane	ext. 117	Editor in Chief, U.S.
Leslie Stimson	ext. 129	News Editor/Wash. Bureau Chief
Kelly Brooks	ext. 136	Associate Editor, RW & Production Editor, RWE
Thomas R. McGinley	—	Technical Adviser
Michael LeClair	—	Technical Editor, RWE
John Bisset	—	Contributing Editor
Skip Pizzi	—	Contributing Editor
Marguerite Clark	—	Editor (International), Milan
Rogelio Ocampo	ext. 121	Latin America Editor in Chief
Karina Gerardi	ext. 137	Latin America Editor
Brett Moss	ext. 143	Managing Editor (International)
Brian Smith	ext. 140	Managing Editor, Web
Peter Finch	—	Editorial Assistant, Milan

### —EDITORIAL CONTRIBUTORS—

W.C. Alexander, Steve Callahan, James Careless, Harry Cole, Mark Durenberger, Charles Fitch, Ty Ford, Scott Fybush, Frank Grundstein, Harold Hallikainen, Craig Johnston, Paul Kaminski, Peter King, Mark Lapidus, Daniel Mansergh, Sharon Rae Pettigrew, Carl Lindemann, Ted Nahil, Tom Osenkowsky, Ken R., Rich Rarey, Tom Ray, Randy Stine, James G. Withers, Travis the V/O Guy, Barry Umansky, Tom Vernon.

## Radio World

Vol. 31, No. 14 June 6, 2007

Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245  
E-mail: radioworld@imaspub.com • Web site: www.radioworld.com

### —ADVERTISING SALES REPRESENTATIVES—

US East & Latin America: John Casey	330-342-8361	Fax: 330-342-8362	e-mail: jcasey@imaspub.com
US West & Canada: Dale Tucker	916-721-3410	Fax: 916-729-0810	e-mail: dtucker@imaspub.com
Classified & Product Showcase: Claudia Van Veen	703-998-7600 x154	Fax: 703-671-7409	e-mail: cvanveen@imaspub.com
European Sales Mgr., Africa, Middle East: Raffaella Calabrese	+39-02-7030-0310	Fax: +39-02-7030-0211	e-mail: rcalabrese@imaspub@tin.it
Japan: Eiji Yoshikawa	+81-3-3327-5759	Fax: +81-3-3322-7933	e-mail: callems@world.odn.ne.jp
Asia/Pacific: Wengong Wang	+86-755-5785161	Fax: +86-755-5785160	e-mail: wwg@imaschina.com

NEXT ISSUE OF RADIO WORLD JUNE 20, 2007  
NEXT ISSUE OF ENGINEERING EXTRA JUNE 13, 2007

For address changes and subscription renewal, please visit www.radioworld.com and click on "Subscribe to RW." To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, e-mail the editor at radioworld@imaspub.com.

### —ADMINISTRATION & PRODUCTION—

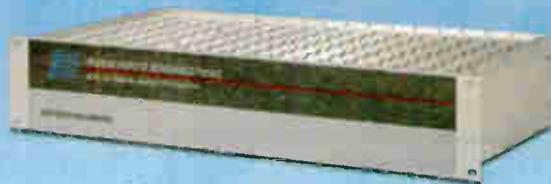
Steven B. Dana	President
Carmel King	Chief Executive Officer
John Casey	Publisher
Marlene Lane	Chief Operating Officer
Chuck Inderieden	Chief Financial Officer
Eric Trabb	Vice President, Sales
T. Carter Ross	Editorial Director
Davis White	Production Director
Karen Lee	Production Publication Coordinator
Lori Behr	Ad Traffic Manager
Linda Sultan	Classified/Product Showcase Layout
Robert Green	Circulation Manager



Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966. Periodicals postage rates are paid at Falls Church, VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church, VA 22041. REPRINTS: For reprints call or write Emmily Wilson, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600; Fax: (703) 998-2966. Copyright 2007 by IMAS Publishing (USA), Inc. All rights reserved.

—Printed in the USA—

# Networked



# Independent



## ***This D-75N Console is BOTH***

**OUR DIGITAL D-75N** is a full-featured standalone mixing console that can also be seamlessly integrated into the AUDIOARTS DISTRIBUTED NETWORK along with other D-75N consoles. Designed specifically for the broadcast industry, the D-75N is intended for on-air and production applications that demand a lot of function and performance. It's got all the features you need: four stereo program busses, dual caller Superphone module, line selector modules, control room and studio modules, plus additional accessory positions.

**The D-75N gives you the benefits** of both standalone and networked architectures—the console has both independent faders for "local sources" and six networked faders capable of accessing designated sources and mixes throughout your system. Single CAT-5 cables connect all studios to your central rackroom, eliminating the need for costly multi-pair wiring between rooms and making installation and expansion fast and easy.

*SHARE RESOURCES and MIXES from studio-to-studio or throughout your entire facility.* In addition to your networked consoles, you can also link up multiple IOC INPUT & OUTPUT CENTERS and further expand your Audioarts network to accommodate existing and *future* sources and format changes.

With the AUDIOARTS D-75N and the AUDIOARTS DISTRIBUTED NETWORK there's a new easy way to link your studios together—and still stay within budget. Visit our website and learn more today!



## **AUDIOARTS ENGINEERING**

# Condition your Signal

with the New Vorsis® HD-P3

## What Is It?

A four-band parametric equalizer feeding a three-band limiter with adjustable crossover points, AGC and selectable filters for FM, AM or streaming audio formats. The HD-P3 includes a variable de-esser, an expander and dual digital outputs (one with user selectable HD latency FM delay), plus high pass, low pass and notch filters, and a signal de-correlator to optimize bass content. All this controlled by an ethernet protocol computer interface that lets you run one or many HD-P3s from your office or internet based locations.

## What It's For:

Processing for your new HD signal, improving your existing FM or AM signal chain, preprocessing streaming audio-over-internet, a standalone HD processor or a realtime DJ monitor feed—and finally—a KILLER studio production tool.

## What's It Like?

“PERFORMANCE WITH *OVERDRIVE*”



# VORSIS®

*It's What's Next in Processing*

a division of Wheatstone

Copyright © 2007 by Wheatstone Corporation

World Radio History